

Delivering E-Nequalities: The Hidden Costs of Amazon and Logistics Development for Vulnerable Communities

Arsène Perrot

Gran Sasso Science Institute

GSSI Discussion Paper
Series in **Regional
Science & Economic
Geography**

Discussion paper No.2026-05

March 2026



GRAN SASSO
SCIENCE INSTITUTE

Editorial Board

Andrea Ascani
Daria Denti
Margherita Grazioli
Alberto Marzucchi

Contact e-mail: dp.rseg@gssi.it

All views expressed in this document are those of the author(s) and do not necessarily represent the views of the editors or the GSSI.

**The GSSI Discussion papers are identified by the International Standard Serial Number:
ISSN 2724-3680**

Delivering E-Nequalities: The Hidden Costs of Amazon and Logistics Development for Vulnerable Communities *

Arsène Perrot[†] 

March, 2026

Abstract

As e-commerce has rapidly expanded worldwide, reshaping global logistics, municipalities facing economic decline have increasingly turned to logistics-led development strategies as a pathway to economic revitalisation. Yet, the sector’s local socio-environmental impacts remain understudied. This paper analyses Amazon’s logistics expansion in Italy to identify the predictors of facility location and the resulting local impacts. Using municipal-level data from 2006 to 2023, the analysis reveals that Amazon disproportionately locates in disadvantaged municipalities characterised by structural economic challenges and weak governance. Staggered Difference-in-Differences estimates show that, following facility openings, meaningful local development or welfare gains fail to materialise, whether in terms of employment, average earnings or fiscal performances. On the contrary, they exacerbate local inequalities and environmental pressures, notably air pollutants concentrations. The findings illustrate how Logistics Development and Amazon’s location strategies reproduce and reinforce existing socio-spatial disparities, concentrating economic and environmental burdens in already vulnerable communities. These results raise critical questions about the sustainability of local development paths shaped by global logistics actors.

JEL classification: R10; R41; Q53; I18; D62; O18

Keywords: Environmental inequalities; Logistics Development; Spatial inequalities; Geographical political economy; Local externalities; Socio-economic polarisation

*Comments are appreciated. Please direct correspondence to arsene.perrot@gssi.it.

The author would particularly like to thank Fabiano Compagnucci and Paolo Veneri for the comments, guidance and suggestions they provided throughout the redaction of this manuscript. The author also acknowledges Giulio Breglia and Alessandro Palma for their guidance regarding data collection and usage, as well as Daria Denti, Olivier Godechot, Giulia Iannone, Ulysse Lojkin, Alessandro Palma and Nicola Pontarollo for comments, feedbacks and discussions on previous versions of this manuscript. Acknowledgements are extended to SciencesPo-AxPo PolEconSoc seminar participants, attendees of ERSa, AISRe and WRSA Annual Conferences sessions, and GSSI’s “Crossed Perspectives on Logistics” workshop.

The author acknowledges financial support under the National Recovery and Resilience Plan (NRRP), Mission 4, Component 2, Investment 1.1, Call for tender No. 104 published on 2.2.2022 by the Italian Ministry of University and Research (MUR), funded by the European Union – NextGenerationEU – Project Title: Italian Geographies - New Italian geographies of logistics. Between global challenges and policy responses – Project ID: 2022TRFAA5 - CUP: D53D23011400001 - Grant Assignment Decree No. 0001109 adopted on 20/07/2023 by the Italian Ministry of University and Research (MUR). [Finanziato dall’Unione europea-Next Generation EU, Missione 4 Componente 1 CUP D53D23011400001]

[†]arsene.perrot@gssi.it, Gran Sasso Science Institute, Social Sciences, Viale Luigi Rendina 26-28, L’Aquila, Italy.

1 Introduction & Motivation

In recent decades, the logistical sector worldwide has experienced an unprecedented rise in the scale and scope of its activities¹. The total value of traded goods tripled between 1965 and 2020 (Ganapati & Wong, 2023), driven largely by significant reductions in transport costs (Glaeser & Kohlhase, 2004; Krugman, 1991) and the broader dynamics of economic globalisation, of which logistics constitutes a central pillar (Charters-Gabanek et al., 2024). Over this period, the sector has undergone profound organisational and technological transformations, most recently with the rise of e-commerce platforms such as Amazon whose new models have reshaped logistics processes at multiple scales.

The profound societal implications of this shift and of the emergence of “consumer logistics” (Rimmer & Kam, 2018) have been extensively discussed, from evolutions in global supply chains and last-mile delivery to new forms of labour discipline and workplace surveillance (e.g., Alimahomed-Wilson, 2020; Gutelius, 2015, 2016). A growing strand of literature documents Amazon’s impact on labour markets and its exploitative organisational practices characterised by low wages, precarious contractual arrangements and intensive monitoring, both within the firm and throughout its global subcontracting network (e.g., Alimahomed-Wilson & Reese, 2020; Cirillo et al., 2024; Delfanti & Frey, 2021; Hara et al., 2018; Kassem, 2023; Vallas et al., 2022).

Yet, while research has examined these broad transformations, far less attention has been paid to their local consequences for communities or to how community characteristics themselves shape the spatial logic of logistics expansion. This study addresses this gap by analysing the predictors of logistics location choices and the environmental and welfare impacts they produce. Empirically, it focuses on Amazon’s logistics network in Italy, using municipal and neighbourhood-level data over the period 2006-2022 and econometric techniques (Probit and staggered Difference-in-Differences) to identify causal effects.

Although scholarship on Amazon has mostly concentrated on implications for work, the firm’s relevance as a case study is not confined to the realm of labour. As one of the main players in global logistics², Amazon provides an ideal case study to investigate the new economic geography of logistics and its wider societal costs, including those borne outside of the workplace.

The increasing concentration of the logistics sector in the hands of a few powerful global actors has created new pressures for local communities, manifesting through a range of economic, social, and environmental impacts (Compagnucci et al., 2025, 2026). As leading logistics companies now emphasise their commitments to social responsibility and sustainability³, often raising concerns around greenwashing (Inês et al., 2023; West, 2022), empirical evidence of their local impacts remains limited in the European context, a gap addressed by this study.

This gap is particularly relevant to fill as logistics, and e-commerce in particular, could play a significant role in reproducing and deepening existing socio-economic and environmental inequalities across space. Understanding these dynamics requires placing geography at the centre of analysis, a perspective

¹See, e.g., <https://www.weforum.org/stories/2024/05/logistics-growth-trends/> ; PwC Italy (2025)

²See, e.g., reports and rankings by the Logistics market specialist agency Armstrong & Associates on Third Party Logistics providers (<https://www.3plogistics.com/3pl-market-info-resources/3pl-market-information/aas-top-50-global-third-party-logistics-providers-3pls-list/> ; <https://www.3plogistics.com/3pl-market-info-resources/3pl-market-information/aas-top-50-global-third-party-logistics-providers-3pls-list/>).

³See, for example, Amazon’s co-funding of the “Climate Pledge” NGO alongside other actors (West, 2022).

largely overlooked in previous research on logistics (Nefs, 2024). In a context where some municipalities actively seek to attract logistical activities to stimulate development, this study conceptualises Logistics Development as a local development strategy emerging from the interactions between sector-wide transformations (Cirillo et al., 2024), new forms of infrastructure development (Andreoli et al., 2010), and local public-private institutional arrangements (Raimbault, 2022; Silvestro et al., 2025). At the same time, it argues that these strategies disproportionately affect particular populations and territories, reinforcing uneven spatial divisions of labour (Massey, 1995) and core-periphery dynamics (Storper & Walker, 1989), thereby contributing to the “reproduction over space of social relations” (Massey, 1995, p.16).

To substantiate these claims, this study empirically addresses two core questions. First, beyond access to infrastructure or markets, what factors determine the location choices of Amazon’s logistics centres? In other words, what kind of places, defined in socio-economic and institutional terms, does Amazon tend to choose for its facilities’ location? Second, do these new infrastructures generate significant socio-economic impacts and environmental externalities?

Italy serves as an ideal case study to address these questions for several reasons. First, logistics plays an important role in the country’s economy, both in terms of contribution to GDP (8.2%) and occupation (around 5.3% of the workforce, Confindustria, 2024). Second, its development is an important policy objective actively supported by authorities: Italy hosts numerous European-level corridor policies, including the Scandinavian-Mediterranean one, the longest the EU coordinates. Third, despite policies typically aiming to promote intermodality, the bulk of transportation is still done by road freight (Confetra, 2022; PwC Italy, 2025). Finally, the rationale behind this sustained development is mostly economic, while the local impacts of Logistics Development remain critically under-examined in both academic and policy debate.

Empirically, the study relies on an exhaustive municipal- and neighbourhood-level dataset to analyse, through Probit models, how local territorial characteristics, including physical features and socio-economic dynamics, have shaped the opening of Amazon facilities since 2011. It then applies staggered Difference-in-Differences models to estimate the effects of these openings on local welfare indicators and air quality.

This study identifies one central stylised fact: Amazon systematically locates its facilities in economically vulnerable areas characterised by economic development traps and limited governance capabilities. The opening of logistics centres further generate negative effects by generally reducing local welfare, widening local income inequalities and adding further air pollution burdens to already disadvantaged communities, deepening pre-existing spatial inequalities. Consequently, local authorities that pursue logistics-led development as a strategy to overcome economic crises rarely achieve meaningful economic improvements while simultaneously internalising environmental externalities historically borne by urban centres.

The remainder of the paper is organised as follows. Section 2 exposes the study’s conceptual framework and hypotheses. Section 3 describes the data. Section 4 analyses the location behaviour of e-commerce logistics actors, while Section 5 assesses the impacts they generate. Some concluding remarks

follow in Section 6.

2 Conceptualising Logistics Development, its new geographies and impacts

2.1 Logistics Development in question

Despite being the backbone of the global economy’s infrastructure (Charters-Gabanek et al., 2024), logistics has long been overlooked as a subject of critical inquiry within the broader social sciences, remaining largely confined to specialised literature in supply chain management. Only recently have geographers and spatial economists begun critically examining the industry, giving rise to what Coe (2020) defines as *logistical geographies*: a concept which encapsulates both logistics’ role as a connective system and its ability to reshape spatial configurations. Building on this framework, this study conceptualises Logistics Development as the outcome of interactions between sector-wide transformations (Cirillo et al., 2024), new infrastructure development types (Andreoli et al., 2010), and local institutional arrangements (Raimbault, 2022; Silvestro et al., 2025). This perspective links logistics to adjacent literatures on local development, particularly in a context where some municipalities explicitly seek to attract such activities in hopes of stimulating development.

As introduced for the Italian case by Compagnucci et al. (2025, 2026), or more generally in Coe’s review (2020), debates only recently shifted from mostly positive views of the potentialities brought by logistics for local development towards more critical and nuanced approaches. Logistics and logistics clusters are typically credited with boosting efficiency, productivity, and competitiveness in host regions (Christopher, 2011), further driving land development (Rivera et al., 2016). Activities that are usually presented as catalysts for land usage, value and growth creation, leading to extensive direct and indirect employment creation across diverse skill levels (Sheffi, 2012), fostering “inclusive” growth for white, blue and “no-collar” workers. However, literature is gradually moving away from this rather naïve understanding, to a more nuanced assessment of its impacts, including in economic terms (Compagnucci et al., 2026; Gutelius, 2016).

While attracting the logistics sector has long been presented as a potential development trajectory for host municipalities, particularly in the United States (Cunningham, 2024; Rivera et al., 2014; Sheffi, 2012), more recent evidence from the Italian context suggests a less clear-cut picture (Compagnucci et al., 2026; Tramontano et al., n.d.). Beyond employment creation, major changes in the sector’s organisation and working conditions are also under scrutiny. These include the creation of new forms of monopolistic power impacting labour organisation (Cirillo et al., 2024), or large-scale physical development, such as mega distribution centres (Andreoli et al., 2010). More broadly, the sector and its leading actors are seen both as drivers and as manifestations of contemporary monopolistic dynamics in the global political-economic landscape. These dynamics grant firms increasing economic and political power, while their costs for workers, communities, and the environment are attracting growing attention (Alimahomed-Wilson et al., 2020; Cirillo et al., 2024). In addition to these economic dimensions, several adverse

externalities have also been associated with the presence of transport infrastructures and activities, including urban sprawl (Aljohani & Thompson, 2016; Garcia-López, 2019) and heightened support for far-right parties (Cuccu & Pontarollo, 2024).

Focusing on the case of Amazon further underlines the tension between its potential large-scale benefits and adverse consequences for local economic systems. To the best of the author’s knowledge, Amazon’s impact on local labour markets has been quantitatively analysed in only two contexts: the United States and Italy. In the former, studies find predominantly negative effects on retail sectors, with the “creative destruction” of e-commerce reducing wages, sales, and employment, while increasing business exits and reducing entries (Chava et al., 2023), even eroding employment and wages in complementary industries (Bauer & Fernández Guerrico, 2023). By contrast, Cunningham (2024) adopts a more holistic perspective, showing that the arrival of Amazon fulfilment centres into US metropolitan areas can boost employment rates and weekly wages, especially for non-college workers. Yet, these benefits are offset by rising rents and utility costs. While informative for this study, the comparability with the Italian context remains limited given the significant institutional, socio-economic, geographical, and structural differences.

In contrast, the Italian case presents a markedly different picture. Tramontano et al. (n.d.) offer initial evidence of negative wage and employment effects following Amazon’s openings at the Local Labour System level. Yet, as in much of the existing literature, their focus remains on (local) labour market outcomes and the local impacts of large employers. Far less attention has been paid to the broader environmental, social, and welfare externalities of Logistics Development. Crucially, the question of which communities bear these costs remains largely unaddressed, a gap this study seeks to fill. This is closely connected to the underexplored role of logistics companies’ location strategies in shaping the spatial and social outcomes of Logistics Development.

2.2 The New Geographies of Logistics Development

In fact, previous studies have largely overlooked the interaction between the effects of Logistics Development and the sector’s location strategies. Still, literature has previously addressed the location question from different perspectives, on which this study builds upon to highlight the importance of diverse territorial assets and institutional arrangements in encouraging Logistics Development.

Two main physical factors relating to Weber (1929) and Alonso’s (1964) location theories stand out when reviewing the literature: infrastructure proximity and access to potential markets. First, the presence of transportation infrastructures (railway stations, airports, highway...) have been shown to be important predictors of logistics’ location decision (Bowen, 2008; Sakai et al., 2020; Verhetsel et al., 2015), including in the Italian case (Holl & Mariotti, 2018). Yet, companies also take into account the other end of the supply chain, i.e., the proximity to their potential markets (Holl & Mariotti, 2018; Lasserre, 2004). This is generally true, but is especially relevant in the case of e-commerce and consumer logistics (Rimmer & Kam, 2018). Analysing Amazon’s expansion in the US, Houde et al. (2017) show that the company’s strategy is based on two main pillars, among which the “densification” of its distribution network, meaning opening new centres in proximity to potential customers. Finally, another related

factor matters: the important path-dependency of logistics' location. This leads to a concentration of logistical actors in hubs, a tendency observed in various contexts (Aljohani & Thompson, 2016; Allen et al., 2012; Cidell, 2010; Hesse, 2002; Leigh & Hoelzel, 2012; Woudsma et al., 2008).

In Amazon's case, these factors are likely to play a role, though their influence could vary according to the type of facility. Amazon's delivery network comprises several facility types, each serving distinct functions. Fulfilment Centres (FC) and Sortation Centres (SC) are large-scale facilities where items are received and orders are prepared for dispatch. These are then routed to Delivery Stations (DS), smaller facilities where packed goods are stored before being collected by delivery vehicles for last-mile distribution (Schorung et al., 2024). Consequently, DSs are likely to be more influenced by proximity to major markets and customer bases, whereas FCs are likely more affected by access to large-scale transport infrastructure and available land.

Although crucial, reducing logistics' location strategies to considerations purely related to Weber (1929) or Alonso's (1964) theories would miss out on some key aspects of the sector's recent growth strategy. Indeed, the movement of "logistics sprawl", i.e., the "trend of outward movement of logistics facilities *from inner urban areas to suburban and exurban areas*" (Aljohani & Thompson, 2016, p.2, emphasis added), is arguably driven by other non-physical factors. In particular, as cost-compression is one of the industry's main growth strategy (Alimahomed-Wilson, 2020; Bonacich & Wilson, 2008; Gutelius, 2016), key actors likely consider other territorial factors when taking location decisions.

First, although this hypothesis is yet to be tested empirically, previous evidence suggests that better bargaining power in front of local institutions is a relevant driver of logistics' localisation in Italy. Using the measure developed by Cerqua et al. (2025), Compagnucci et al. (2026) show that Italian logistics hubs tend to be located in municipalities with lower administrative and institutional quality, and particularly in those performing poorly in fiscal and governance terms. Although the authors do not address the direction of this relationship, they argue that "this underperformance is likely both a cause and a consequence of the presence of logistics operators, who are able to leverage their bargaining power when negotiating land use and access with local authorities—particularly those striving to improve poor fiscal outcomes" (Compagnucci et al., 2025, p.9). While their analysis centres on Pomezia in the province of Rome, comparable dynamics can be observed in other contexts, such as the province of Pavia (Lombardy). There, too, numerous logistics hubs have been established on the basis of promises from logistical actors of job creation or even investment in local infrastructure (Invernizzi, 2022). This perspective appears particularly pertinent when considering the role of a globally powerful actor such as Amazon.

Yet, other local dynamics can matter. In particular, logistics appears to thrive in former industrial districts that have faced economic downturns and been weakened by globalisation, where local institutions aim to take advantage of the job creation potential of the sector (Compagnucci et al., 2026; Silvestro, 2024). This trend has been observed in different contexts, such as the US, where warehouses locate more in poorer neighbourhoods (Yuan, 2018, 2021), or Italy where a movement of structural change from manufacturing to logistics has been observed in economically vulnerable areas (Compagnucci et al., 2026). Indeed, contrary to the US where multi-city "Infrastructure Alliances" are united in shared supply-chain expansion interests (Wachsmuth, 2017), the lack of coordination in local governance in Italy

prevents vulnerable municipalities from accruing bargaining power (Compagnucci et al., 2026; Silvestro, 2024). Overall, evidence shows that logistics tends to concentrate in peripheral areas, attractive for a cost-cutting industry (Gutelius, 2015) but especially vulnerable to the bargaining power of large firms.

2.3 The Local Externalities of Logistics Development: Air Pollution

Despite the well-documented significance of air quality issues (Chay et al., 2003; EEA, 2016, 2020), evidence on the specific environmental impact of logistical activities and particularly on which populations bear the greatest burden of these negative externalities remains scarce. While some studies have examined the effects of logistics infrastructures in Europe, research has given limited attention to local pollution, a gap this study seeks to address.

This oversight is especially pertinent given the emerging geographies of logistics, which has been shown to affect the environment, albeit mostly at the global level through measures such as CO₂ emissions, including in the Italian case (Compagnucci et al., 2025). Shifting the focus to local outcomes is increasingly relevant in light of ongoing EU institutional initiatives promoting the sector’s role in the so-called “twin transition”⁴, despite the critical shortcomings of this policy concept (Carbonell, 2024; Nelli et al., 2026). In this context, the present study provides insights relevant to these European Directives, highlighting the importance of protecting local environmental sustainability.

In their review of literature on logistics development and the urban environment, Aljohani and Thompson (2016) highlight that the sector’s changing geography, fueled by the expansion of related infrastructure like highways (Garcia-López, 2019), has increased truck travel distances and altered urban commuting patterns. As evidenced by research in the United States, particularly on the California Inland Empire, a major national logistics hub, such developments are likely to intensify local environmental problems. Allison’s qualitative assessment of “what happens when Amazon comes to town” (2020) shows how local communities, and in particular the most vulnerable ones, suffer environmental issues created by warehouses, such as noise and air pollution, but also traffic congestion and road accidents. This is quantitatively confirmed by Yuan (2021) for the Californian example, showing that warehouse locations are highly correlated with increased air pollution. Other studies link logistics facilities and truck freight to lower air quality (Bluffstone & Ouderkirk, 2007; Kozawa et al., 2009; Perez et al., 2009), a problem exemplified by the general increase in truck traffic and pollution in metropolises like São Paulo (He et al., 2019). While qualitative studies (Compagnucci et al., 2026) suggest that logistics-induced environmental effects exist in Italy, these impacts have not yet been systematically assessed.

Potential consequences of this increased pollution include respiratory illnesses and premature deaths (e.g., Chay et al., 2003; He et al., 2016; He et al., 2019; Isen et al., 2017; Moretti & Neidell, 2011), in particular for children (Beatty & Shimshack, 2014; Simeonova et al., 2021), productivity losses (Graff Zivin & Neidell, 2012), accidents on the workplace (Palma et al., 2025), reduced earnings and labour force participation (Isen et al., 2017), and larger impacts on local ecosystems (EEA, 2024), likely counterbalancing the potential economic gains municipalities expect from attracting logistics activities. Although

⁴For some recent policies examples, see the eFTI Regulation (2019/1239), Single Window Environment for Customs (2020), TEN-T Regulation (Trans-European Transport Network, 2013/2021 revisions), Mobility Package I (2020), Cybersecurity Directive (2016/1148/EU), Clean Vehicle Directive (2019) or the Circular Economy Action Plan (2020).

transportation infrastructures have been linked to increased pollution, such as ports (Ducruet et al., 2024; Moretti & Neidell, 2011) or airports (Schlenker & Walker, 2016), little is known about the impacts of land-based transportation in the European context.

Hypotheses

On the basis of this theoretical framework, which conceptualises logistics as an actor capable of exploiting local weaknesses (sections 2.1 and 2.2), the study’s first hypothesis (**H1**) emerges: the location strategy of logistics operators can be predicted to locate more often in peripheral, economically and institutionally vulnerable territories. This strategy is driven by a cost-compression logic that favours areas characterised by: (1) pre-existing logistics hubs; (2) strong infrastructural and market connectivity; (3) economically distressed local economies; and (4) low institutional capacity to negotiate favourable terms. The power asymmetries and cost-competitive nature of the sector leads us to hypothesise that the promised lasting local development and welfare improvements for hosting territories will not materialise (**H2**) and that environmental costs, measured as air pollution and a local rise in Particulate Matter 10 (PM₁₀) concentration (section 2.3), will instead be passed on to host communities (**H3**).

3 Data Description

3.1 Logistics: the Amazon case study

Research on the logistics sector in the Italian context faces considerable data constraints, making a holistic assessment of the industry difficult. As noted in previous studies (Compagnucci et al., 2026; Cuccu & Pontarollo, 2024), employment data from the ASIA-ISTAT register present several shortcomings. First, the spatial allocation of employees to specific establishments is unreliable due to the sector’s organisational structure: logistics relies heavily on short-lived subcontractors and cooperatives, which often cease operations or relocate within two years (Cuccu & Pontarollo, 2024; Ganz, 2019). Because ASIA-ISTAT includes only firms active for at least six months, the resulting data are unstable at fine spatial scales (Cuccu & Pontarollo, 2024). The widespread use of temporary agencies further distorts employment measures, as workers are recorded under the agency rather than the logistics firm using their labour (Compagnucci et al., 2026; Gutelius, 2016).

Land-use data from ISPRA, used by Cuccu and Pontarollo (2024), offer detailed information on warehouse-related land conversion, including plot size, land classification, and type of logistics activity. However, they are unsuitable as a primary identification strategy: the data are available only as period-to-period changes, which prevents a continuous longitudinal analysis, and they do not report absolute levels of land dedicated to logistics.

This study circumvents these data constraints by focusing on Amazon’s logistics network, which constitutes a compelling case study for analysing the sector’s evolution, as discussed in Section 2. Following methodologies used in international studies (e.g., Cunningham, 2024; Tramontano et al., n.d.), data on the locations and types of facilities opened in Italy since 2011 was sourced from MWPVL International.

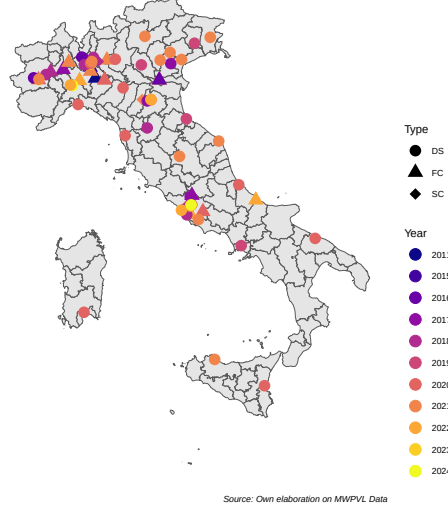


Figure 1: *Opening of Amazon facilities in Italy*

This data was then verified and refined through grey literature and newspaper analysis, per the approach of Bauer and Fernández Guerrico (2023). Figure 1 maps these openings, showing how the Amazon infrastructure network has gradually expanded across the Italian territory since 2011, the year of the first facility’s opening in Castel San Giovanni/Piacenza, in the northern part of the country. By 2022, most regions counted at least one centre, with the notable exceptions of Basilicata and Calabria.

3.2 Physical & Territorial Characteristics

Local Development Traps

Building on evidence that logistics often targets economically struggling areas undergoing deindustrialisation or structural changes (Compagnucci et al., 2026), this study adapts the Development Trap measure from Diemer et al. (2022) to the Italian Local Labour System (LLS) level. This measure captures the performance of local systems relative to themselves and to other systems in their country on a set of dimensions, allowing the identification of places that either are in a development trap or at significant risk of falling into one, i.e., places facing structural challenges in retrieving past dynamism or improving current prosperity for their residents (Diemer et al., 2022).

This original⁵ adaptation is necessary for two main reasons. First, the original metric is defined at a much broader geographical scale (NUTS2), which is too coarse to capture local dynamics. Second, adapting to the data available at this level of disaggregation allows for a more precise measurement of the relevant socio-economic processes.

The three original dimensions are proxied as follows: 1) Regional Welfare: Income per Taxpayer (Ministry of Economy and Finance, MEF data), replacing GDP per capita; 2) Productivity: Total wages per wage-earner (MEF data), serving as a proxy for Value Added per Worker; 3) Labour Supply-Demand Dynamics: Employment-to-Population ratio (ISTAT and ASIA-ISTAT data).

⁵Although González-Cuatianquis et al. (2025) propose a city-level adaptation of the measure, their contribution focuses on cities and uses periodic changes across Europe, which differ strongly from the current setting and doesn’t allow to capture fine-grained changes at the local system level.

Two further dimensions are included to capture local dynamics across a larger spectrum of the local population’s labour force participation, reflecting concepts noted but not formally operationalised in the original study: the local employment rate and the active-to-inactive ratio, which further specify local labour supply-demand dynamics. These respectively proxy the local economy’s capacity to provide jobs to those participating in the labour market and the extent to which the population remains economically active versus dropping out.

The resulting measure identifies LLSs in a state of crisis, hypothesised to be more likely to host new logistics facilities. Operationally, a dummy variable is assigned with value 1 to every municipality in a LLS where the cumulative average probability of being in crisis exceeds 0.75; once this threshold is crossed, the dummy remains 1 in subsequent periods. Appendix A.1 details the formal definition of the adapted Development Trap measure. Similarly to the original study, variables used for calculating the index are correlated with each other (see Table A1). Yet, each of these variables provides with specific variation and sheds light on specific dimensions of the development trap (Diemer et al., 2022).

Institutional and Administrative Quality

Institutional quality is measured using the Municipal Administration Quality Index (MAQI) developed by Cerqua et al. (2025) and available at the municipal level from 2001 to 2022. This index comprises three pillars: the Quality of Local Bureaucracy, the Quality of Local Politicians, and the municipality’s Fiscal and Economic Performance. The second and third pillars are of particular interest, as logistics hubs often coincide with municipalities exhibiting weaker fiscal performance and governance capacity. Low scores on these measures likely indicate reduced bargaining power vis-à-vis private actors (Compagnucci et al., 2026; Invernizzi, 2022; Silvestro, 2024).

Access to infrastructure & to Market

Municipal access to infrastructure is measured using ISTAT’s 2021 accessibility indicator. Based on a matrix of distances (in kilometres) to major transport infrastructure (including train stations, airports, ports, and highway entrances), it computes accessibility to each type of service using a gravity-based approach.

Market access is proxied by the distance from each municipality’s centroid to the centre of the nearest Functional Urban Area (FUA) with a population over 250.000, as per the OECD classification of Italian FUAs (Dijkstra et al., 2019).

Other territorial characteristics

Additional variables are included in the analysis. Logistics and warehousing employment data are drawn from the ASIA-ISTAT register, while total population and socio-demographic characteristics of the different LLS are obtained from ISTAT. LLSs are classified into seven homogeneous groups based on demographic structure, population dynamics, and residential settlement patterns⁶, allowing to control for

⁶For more information, see <https://www.istat.it/statistica-sperimentale/movimento-alberghiero-3/> or <https://www.istat.it/wp-content/uploads/2010/02/SL1-nota.pdf>.

general trends at the local system level. Land use is measured as the percentage of municipal land dedicated to various uses, sourced from ISPRA. A dummy variable indicates whether a municipality is a provincial capital, capturing its relative local centrality. Income data (including average income, number of wage-earners, and number of taxpayers by income bracket) are drawn from IRPEF-MEF tax declarations.

3.3 Environment & Air Quality

Information on local air quality is sourced and elaborated from the Airbase database of the European Environmental Agency (EEA). Air quality is measured as the concentration of Particulate Matter 10 (PM_{10}), pollutants with an aerodynamic diameter of ten micrometers or smaller.

The focus on PM_{10} is motivated by its high relevance for urban environments and human health. A significant proportion of these particles originates from road traffic, including fuel combustion, brake and tire abrasion, and other non-exhaust vehicle emissions (EIT URBAN MOBILITY, 2025), making PM_{10} a pertinent indicator of the environmental impact of logistics in Italy. PM_{10} is also a good choice for practical reasons, as it provides larger coverage than other pollutants in Italy (Palma et al., 2025). Its widespread use as a proxy for overall air pollution also facilitates cross-study comparison.



Source: Own elaboration on EEA Data

Figure 2: *Location of PM_{10} Monitoring Stations*

The original pollutants concentrations data is generated by a set of monitoring stations located across the country, as presented in Figure 2. Using the location of each station, these values are first assigned to the corresponding municipality via a spatial join algorithm. For municipalities with more than one monitoring station, the median concentration value is assigned to the municipality. Concentrations for neighbouring municipalities are then estimated using the commonly applied inverse distance formula (Currie & Neidell, 2005; Filippini et al., 2019; Giaccherini et al., 2021; Palma et al., 2025; Schlenker &

Walker, 2016), as defined in (1).

$$P\widehat{M10}_{it} = \frac{v_t}{d_i} \quad (1)$$

where $P\widehat{M10}_{it}$ is the estimated PM₁₀ concentration in municipality i in period t ; v_t is the PM₁₀ concentration in the closest monitoring station to municipality i in period t ; d_i is the distance from municipality i to that station. Following Filippini et al. (2019), the estimation is limited to a maximum distance of 30 kilometres from each station.

Some points are worth discussing with respect to this definition. First, it assumes that monitoring stations are usually located in areas with higher pollutant concentrations, the underlying idea behind this measure being that the concentration of PM₁₀ diminishes with distances in a non-linear way. Second, it assumes that the pollutant concentration is uniform within the spatial unit considered. In the case of Italian municipalities, the bias created by this assumption is limited as these are relatively small spatial units. Finally, it applies a relatively high spatial discount rate to reduce estimation bias, meaning that effects estimated with these values are likely to be lower bound effects.

Definitions, sources, and descriptive statistics for all variables are reported in Appendix A.2.

4 Logistics Location Behaviour

4.1 Method: Probit Models

To test hypothesis H1, the study relies on a Probit model at the municipality-year level to determine the local characteristics influencing Amazon’s location decision. The model is specified as in (2):

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 X'_{it} + \varphi_t + \omega_r + \epsilon_{it} \quad (2)$$

where Y_{it} indicates the presence of an Amazon Logistics Centre in municipality i in year t . The coefficient of interest β_1 is related to physical variables (X_{it}) of municipality i in year t , while β_2 is related to local socio-economic variables (X'_{it}). φ_t and ω_r are respectively time and regional (NUTS2) fixed effects, and ϵ_{it} is the error term.

The vector X_{it} includes accessibility to infrastructures and market, as well as the logarithm of the total population in the LLS. X'_{it} contains variables related to Institutional Quality, Local Development Trap and Provincial Capital status, the Inverse Hyperbolic Sine of total employment in the logistics sector⁷, the percentage of land used in the municipality and the LLS socio-demographic classification. Some models also include regional (NUTS2) fixed effects (ω_r) to account for Amazon’s strategy of locating facilities across regions to increase network density and serve its entire customer base (Houde et al., 2017; Schorung et al., 2024), thus considering differences between municipalities within the different Italian regions.

⁷The inverse hyperbolic sine (IHS) transformation is applied to normalise distributions while retaining zero-valued observations, providing a similar interpretation to the logarithmic transformation (Bellemare & Wichman, 2020).

4.2 Results

Consistent with previous literature, physical characteristics, as in Weber’s (1929) and Alonso’s (1964) location theories, play a prominent role in explaining Amazon logistical facilities openings across Italian municipalities between 2010 and 2022. At the same time, variables capturing local socio-economic conditions, as argued in the conceptual framework of Logistics Development, do bring new light in understanding logistics’ location strategies.

Table 1 illustrates this pattern. Across specifications, one of the most important predictor is access to market (proxied by total population in the LLS and distance to large FUAs). In Italy, where road freight dominates, motorway accessibility emerges as the key infrastructural driver of Amazon facility placement. The presence of previous employment in logistics, both overall and specifically in warehousing (column 4), do positively predict the opening of an Amazon centre, reflecting the sector’s path-dependent location dynamics.

On the other hand, previously unobserved trends appear, even in regards to physical characteristics. In particular, the negative relation between access to ports or railways and infrastructure openings, potentially linking e-commerce actors activities to an avoidance for rail and naval transport infrastructures. At the very least, these results suggest that Amazon’s business model, who relies heavily on road transport for last-mile delivery, might not benefit from these forms of accessibility. However, in the absence of evidence in other contexts regarding the particular behaviour of e-commerce, these findings should be considered as potentially specific to the road-heavy Italian context. Results are not qualitatively changed when accounting for regional fixed effects in Table 2.

The main results from Tables 1 and 2 for the variables linking territorial socio-economic dynamics to Amazon’s presence highlight two complementary mechanisms. First, the Local Development Trap shows a strong, positive, and statistically significant relationship with Amazon’s location, indicating that municipalities in a sustained state of economic crisis are more likely to host facilities (Tables 1, 2 and B1). This result underscores the sector’s tendency to target areas experiencing structural socio-economic challenges. Second, institutional quality measures provide a more nuanced pattern. The “Quality of Local Politicians” is positively associated with Amazon’s presence, which can be interpreted as an increased capacity of those places to attract the firm in the first place, e.g., through the politicians’ networks (Jia et al., 2022; Nian & Wang, 2023). By contrast, higher “Quality of Local Bureaucracy” reduces the likelihood of facility placement, while fiscal and economic performance measures appears unrelated. Together, these findings suggest that, beyond structural vulnerability, the type and capacity of local governance shape the firm’s location decisions in complex ways.

Taken together, these results point, consistently with Compagnucci et al. (2026) or Invernizzi (2022), to the importance of the firm’s bargaining power when deciding on a location, potentially allowing the firm to take advantage of municipalities characterised by weak governance and persistent economic difficulties. This interpretation aligns with the Territorial Regime of Logistics framework (Silvestro et al., 2025), wherein public and private actors converge in informal alliances that promotes and facilitates Logistics Development.

By decomposing further to the neighbourhood level⁸ in Appendix B.1, an additional pattern becomes evident. In line with the logistics sprawl idea (Aljohani & Thompson, 2016), and with Alonso’s (1964) land-cost and accessibility trade-off, Amazon infrastructures tend to locate in Peripheral and Suburban Zones, while consistently avoiding Central and Semi-Central Zones, as well as Extra-Urban areas (Table B1). This spatial preference underscores the firm’s search for a balance between accessibility to urban markets and lower land and operational costs.

Appendix B.2 examines differences in locational characteristics between Fulfilment Centres and Delivery Stations. Table B2 details the strategy behind the placement of Amazon’s larger warehouses. These facilities are more likely to be situated in municipalities with motorway access, an established logistics workforce, and substantial greenfield availability - patterns consistent with the firm’s broader expansion logic. In line with the main results, Fulfilment Centres location is also negatively associated with the Quality of Local Bureaucracy and positively associated with Local Politician Quality. Overall, the location of Fulfilment Centres appears driven by a combination of land availability, transport connectivity, and the capacity to negotiate with local institutions exhibiting weaker governance assets.

By contrast, Table B3 shows that Delivery Stations are more responsive to local logistics employment and to population density within the surrounding LLS. The coefficient associated with the Local Development Trap is strongly positive and significant, suggesting a concentration of these facilities in areas facing structural economic issues. In summary, Delivery Stations tend to locate in densely populated territories with an existing logistics base, often situated not within provincial capitals but in their immediate vicinity.

Robustness Checks

Several robustness checks are reported in Appendix, providing further evidence on the characteristics associated with Amazon’s location behaviour. First, to demonstrate that the results are robust to alternative definitions and operationalisations of the Development Trap concept, Appendix B.3 presents a sensitivity analysis based on varying the thresholds above which a LLS is classified as being in a Development Trap. The results are unaffected by these changes. On the contrary, higher thresholds are associated with larger estimated coefficients for the Development Trap variable (Tables B4 to B9), indicating that the main findings are not driven by an arbitrary choice of threshold.

Appendix B.4 further decomposes the Development Trap into its constituent components, reporting results for current levels, acceleration rates and deviations from national trends. Taken together, these estimates highlight the relative contribution of individual components, while indicating that none alone fully accounts for the Development Trap. Overall, the specifications point to LLSs characterised by weak demographic and wage dynamics, most notably a low active-to-inactive ratio and relatively low average wages, yet with employment levels that remain above the national average, consistent with the interpretation of economically declining former industrial centres. However, it is the interaction of these

⁸Defined through the Immobiliary Market Observatory (OMI) Zones of the Italian Fiscal Authority (*Agenzia delle Entrate*). Given the lack of data availability at this spatial scale, variables are specified at the municipal level for each neighbourhood. Accordingly, under the assumption of relative homogeneity within Italian municipalities, the regression identifies the type of neighbourhood in which each facility is located.

Table 1: *Probit Model Results, Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Total Pop. in LLS (log)	0.105*** (0.030)	0.092*** (0.032)	0.151*** (0.040)	0.168*** (0.042)	0.184*** (0.042)
Distance to closest High. Pop. FUA	−0.003** (0.001)	−0.003** (0.001)	−0.004*** (0.001)	−0.004*** (0.001)	−0.004*** (0.001)
Railway Accessibility	−0.009*** (0.003)	−0.008*** (0.003)	−0.010*** (0.003)	−0.009*** (0.003)	−0.008** (0.004)
Motorway Accessibility	0.011*** (0.002)	0.012*** (0.002)	0.013*** (0.002)	0.011*** (0.002)	0.013*** (0.002)
Airports Accessibility	−0.006* (0.003)	−0.006* (0.004)	−0.007* (0.004)	−0.008** (0.004)	−0.006 (0.004)
Ports Accessibility	−0.050*** (0.013)	−0.060*** (0.015)	−0.031** (0.014)	−0.028** (0.014)	−0.028** (0.014)
Logistics employment (IHS)	0.459*** (0.030)	0.461*** (0.031)	0.473*** (0.031)		0.473*** (0.032)
Warehousing employment (IHS)				0.389*** (0.026)	
LLS In Development Trap	0.068 (0.097)	−0.100 (0.102)	0.256** (0.122)	0.320** (0.125)	0.238* (0.124)
MAQI - Local Politician Quality	0.023*** (0.004)	0.013*** (0.005)	0.016*** (0.005)	0.020*** (0.005)	0.015*** (0.005)
MAQI - Quality of Local Bureaucracy	−0.045*** (0.008)	−0.024** (0.009)	−0.026*** (0.009)	−0.021** (0.010)	−0.027*** (0.009)
MAQI - Fiscal and Economic Performances	0.072*** (0.011)	0.023* (0.013)	0.009 (0.014)	0.006 (0.015)	0.006 (0.014)
Provincial Capital	−0.130 (0.116)	−0.100 (0.122)	−0.117 (0.125)	−0.00002 (0.121)	−0.081 (0.127)
Percent of Land Used					−0.005 (0.003)
Year FE	No	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631
Log Likelihood	−898.379	−818.607	−792.677	−739.211	−769.203
Akaike Inf. Crit.	1,822.759	1,687.214	1,649.355	1,542.421	1,596.406

Note:

*p<0.1; **p<0.05; ***p<0.01
Year fixed effects and Socio-Demographic classification
included but not reported

Table 2: *Within-Region Probit Regression Results, Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Total Pop. in SLL (log)	0.087** (0.034)	0.082** (0.036)	0.146*** (0.048)	0.168*** (0.051)	0.179*** (0.050)
Distance to closest High. Pop. FUA	−0.002 (0.002)	−0.003 (0.002)	−0.004* (0.002)	−0.003 (0.002)	−0.004* (0.002)
Railway Accessibility	−0.007** (0.003)	−0.007** (0.003)	−0.007** (0.004)	−0.005 (0.004)	−0.005 (0.004)
Motorway Accessibility	0.013*** (0.002)	0.013*** (0.002)	0.014*** (0.002)	0.012*** (0.002)	0.013*** (0.002)
Airports Accessibility	−0.008** (0.004)	−0.008* (0.004)	−0.008* (0.004)	−0.008* (0.004)	−0.008* (0.004)
Ports Accessibility	−0.011 (0.009)	−0.011 (0.010)	−0.014 (0.012)	−0.013 (0.012)	−0.013 (0.011)
Logistics Employment (IHS)	0.447*** (0.031)	0.452*** (0.033)	0.465*** (0.033)		0.476*** (0.034)
Warehousing Employment (IHS)				0.376*** (0.027)	
LLS In Development Trap	0.498*** (0.144)	0.402*** (0.155)	0.514*** (0.162)	0.490*** (0.167)	0.511*** (0.164)
MAQI - Local Politician Quality	0.026*** (0.004)	0.016*** (0.005)	0.018*** (0.005)	0.023*** (0.005)	0.017*** (0.005)
MAQI - Quality of Local Bureaucracy	−0.046*** (0.008)	−0.026*** (0.010)	−0.025*** (0.010)	−0.020* (0.011)	−0.027*** (0.010)
MAQI - Fiscal and Economic Performances	0.069*** (0.012)	0.010 (0.015)	0.013 (0.015)	0.015 (0.016)	0.008 (0.016)
Provincial Capital	−0.103 (0.122)	−0.077 (0.128)	−0.120 (0.130)	−0.025 (0.127)	−0.092 (0.132)
Percent of Land Used					−0.007* (0.004)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631
Log Likelihood	−869.992	−790.946	−776.719	−722.601	−752.323
Akaike Inf. Crit.	1,803.984	1,669.891	1,655.438	1,547.201	1,600.646

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

conditions that defines a state of crisis (Diemer et al., 2022); accordingly, the Development Trap is best understood as a multidimensional phenomenon, which the main model captures more directly.

Second, Appendix B.5 presents the procedure and results of a Monte Carlo-type placebo randomisation test. In this exercise, the treatment (Amazon’s presence) is randomly assigned to municipalities over time while preserving the original data structure (with $N = 57$ treated units and opening dates mirroring the observed entry strategy). This procedure is repeated $B = 500$ times to assess whether a random allocation of treatment yields results comparable to those of the main analysis. On average, the estimated effects from these placebo regressions do not replicate the main findings (Table B13, with Monte Carlo standard errors reported in Table B14), ruling out the possibility that the results arise by chance.

As around 99% of observations take treatment value 0, to address concerns that Probit estimates may be biased in rare-event settings, and ensure that the findings are not driven by model choice, Appendix B.6 reports estimates from alternative models suitable for binary or count outcomes and rare events. Specifically, results are presented for a standard Logit model (Table B15), a Quasi-Poisson model (Table B16), and a rare-events model based on penalised likelihood logistic regression following Firth (1993) (Table B17). Moreover, given that no Amazon Center has closed over the period, Table B18 details results of models following on Beck et al. (1998) and Allison (1982) in modelling treatment adoption using a discrete-time hazard framework, where the dependent variable equals one in the first year of adoption and zero otherwise. Results remain consistent across specifications.

To mitigate potential reverse-causality concerns regarding the link between Amazon’s presence and socio-economic characteristics influenced by its opening (see Section 5), Appendix B.7 presents results with lagged regressors up to 3 years. Results are consistent.

Finally, to alleviate concerns related to the mechanical scarcity of hosting municipalities and make the comparison more meaningful by focusing on places plausibly exposed to Amazon’s site-selection process, Appendix B.8 reports results with a restricted sample of municipalities, respectively within Provinces (Table B22) and Local Labour Systems (Table B23) hosting at least one treated municipality. Although using the LLS-level prevents using the variables defined at this level (Development Trap, Population), results remain generally consistent with the main specifications, with the exception of the quality of bureaucracy coefficient.

Overall, results show that, even when accounting for a wide range of physical and socio-economic characteristics, one central stylised fact holds true: the logistics sector consistently locates in places experiencing structural crisis at the periphery of the country’s largest urban areas.

5 The Local Impacts of Logistics Development

5.1 Method: Staggered Difference-in-Differences

To test hypotheses H2 and H3, the paper estimates staggered Difference-in-Differences models following the framework of Callaway and Sant’Anna (2021). In this setting, it relies on the opening of Amazon

centres in specific places as a shock on a set of local socio-economic outcomes. The identification relies on (i) the timing of treatment, given by the different opening dates of Amazon facilities, and (ii) the cross-sectional variation between municipalities that do or do not host a centre. Formally, it is estimated with the doubly robust estimator of Callaway and Sant’Anna (2021) expressed as:

$$Y_{it} = \gamma_i + \varphi_t + \beta_1 \sum_{k=a}^b D(Treatment_t) * D(K = k) + \varepsilon_{it} \quad (3)$$

where Y_{it} is the outcome of interest in municipality i in period t . The coefficient of interest β_1 captures the dynamic treatment effects for each relative time period k , with $K = 0$ denoting the period of opening. Municipality and time fixed effects (γ_i and φ_t) account for all time-invariant local characteristics and common shocks. ε_{it} is the error term. Standard errors are clustered at the municipality level.

To ensure comparability between treated and control units and limit endogeneity issues, the analysis incorporates a propensity-score matching procedure. This step identifies the units that were most likely to receive an Amazon centre based on pre-treatment characteristics but did not (Imbens, 2000; Rosenbaum & Rubin, 1983; Rubin, 1973). The propensity scores are obtained from the probit model described in Section 4, estimated at the municipality level without the time dimension⁹. Descriptive statistics for the treated and PSM-matched control group are reported in Table 3.

Table 3: Treated and Matched Control Groups Descriptive Statistics

Variable	Treated	Control
LLS In Development Trap	0.10 (0.22)	0.10 (0.24)
MAQI - Quality of Local Bureaucracy	101.04 (1.72)	100.58 (2.23)
MAQI - Local Politician Quality	110.27 (5.65)	109.34 (5.66)
MAQI - Fiscal and Economic Performances	101.75 (2.24)	101.76 (2.56)
Airports Accessibility	12.66 (14.50)	11.31 (11.09)
Motorway Accessibility	57.19 (18.37)	58.86 (18.55)
Ports Accessibility	0.92 (2.51)	0.86 (2.35)
Railway Accessibility	14.88 (15.33)	11.58 (13.45)
Distance to closest High Pop. FUA	33.94 (32.69)	38.46 (36.48)
Logistics Employment (IHS)	7.61 (1.88)	7.04 (1.24)
Total Pop. in LLS (log)	13.12 (1.35)	12.92 (1.41)
Provincial Capital	0.30 (0.46)	0.21 (0.41)
Observations	56	280

Note: Average values, Standard deviations in parentheses

5.2 Income, Welfare & Local Development

Figures 3 and 4 present the estimated local welfare dynamics following the arrival of Amazon, as estimated through the staggered Difference-in-Differences models. The first figure focuses on changes in average

⁹The variables used for the matching procedure are : Railway, Motorway, Ports and Airports Accessibility; the MAQI pillars - Fiscal & Economic Performances, Quality of Local Bureaucracy, and Local Politician Quality; log of the total population in the LLS; Distance in kilometres to the closest high population FUA; Dummies for the LLS being in a Development Trap and the municipality being a provincial capital; the IHS of Logistics Employment.

welfare outcomes, while the second highlights distributional patterns. Together, the results indicate that the expected economic development for hosting municipalities does not materialise; instead, Amazon's arrival appears to exert downward pressure on local wages and overall economic conditions.

Figure 3 reveals several dynamics related to the economic and welfare performances of the municipalities and Local Labour Systems (LLSs) hosting an Amazon facility. Panels (a) and (b) show that average wages tend to decline after a centre opens. These results align with previous literature on monopsony power and the local impacts of large employers, potentially reflecting mechanisms such as displacement of brick-and-mortar retail, local business closures, or broader wage-setting effects - mechanisms that lie beyond the scope of this study (Cirillo et al., 2024; Lehner et al., 2024; Tramontano et al., n.d.; Wiltshire, 2023).

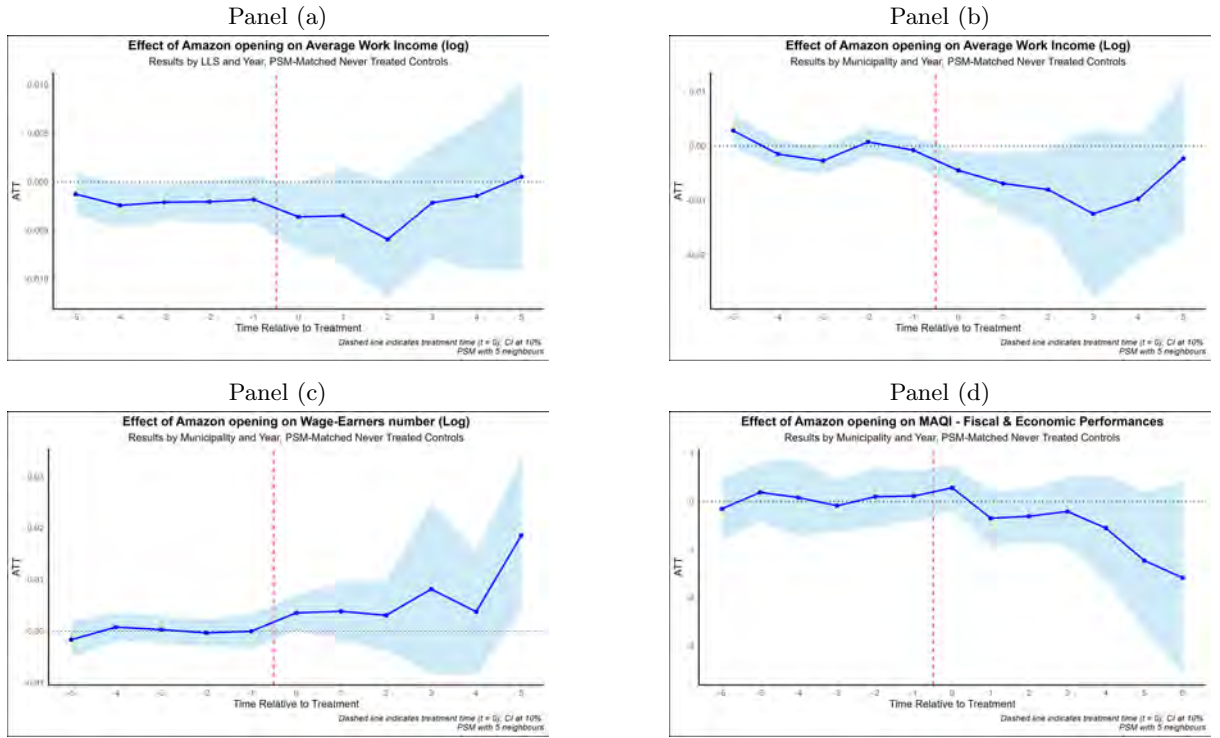


Figure 3: *Dynamic Difference-in-Differences Specification for local welfare indicators*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Average Work-related Income (log-transformed) with PSM-Matched Never Treated Controls at the LLS-Year level (Panel (a)); the Average Work-related Income (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)); the total number of jobs (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)); the Fiscal & Economic Performances as defined in the MAQI (Cerqua et al., 2025) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (d)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

Although the opening of a warehouse generates a small increase in the number of local wage-earners (Panel (c)), Panel (d) shows no corresponding improvement in municipal finances. A plausible interpretation is that the municipalities that attract Amazon are already economically fragile (consistent with Section 4) and the type of jobs created reinforces this vulnerability. Lower-wage employment depresses average earnings through substitution effects and likely reduces the local tax base, thereby limiting any potential fiscal gains. Overall, the findings reinforce the idea that Logistics Development provides limited

economic benefits to the territories that host it.

On the contrary, Amazon’s arrival could have distributional effects beyond host municipalities and within their local system, as showcased in Figure 4. Results showcased in Panels (a) and (b) point to an income-polarisation process within treated LLSs. Indeed, treated LLSs experience at the same time an increase in the share of residents in the low-income bracket (below 15,000 euros/year) and in the share of high-income residents (above 55,000 euros/year, enough to be situated between the national top 10% and top 1% income groups in 2021 according to Guzzardi and Morelli (2024)). Correspondingly, the middle-income group (15,000-55,000 euros/year) shrinks (Figure B1, Panel (a)), with most of this decline shifting into the low-income category. While both low- and high-income shares rise after treatment, the changes are asymmetric: the low-income group increases by approximately 0.5 percentage points, whereas the high-income group (above 55,000 euros/year) increases by only about 0.2 points.

However, these changes at the LLS-level are not perfectly paralleled at the municipal level. In fact, results in Figure 4 indicate that only the share of low-income earners rises (0.6 p.p., Panel (c)), while the change in the share of high-income earners is essentially equal to 0 (0.01 p.p., Panel (d)) following the Amazon opening. These asymmetrical distributional impacts within the LLS are reflected in the concentration of the different income groups in the municipality (Figure B1, Panels (c) to (e)). This dynamic could be interpreted as evidence of a mechanism whereby newly created higher-income positions, whether generated directly or indirectly by the centre, do not translate into residential relocation within the host municipality. Instead, higher-income workers appear to reside in neighbouring municipalities within commuting distance (e.g., due to amenities or services). Consequently, it is plausible that neighbouring municipalities, rather than the host municipality itself, capture a disproportionate share of the associated residential and distributional benefits.

Overall, the evidence provides little support for the expectation that Amazon’s arrival improves local welfare conditions. Instead, the decline in average wages, the worsening of local income distributions, and the absence of measurable fiscal gains suggest that hosting a logistics centre does not translate into meaningful economic upgrading for municipalities. These findings reinforce the idea that Logistics Development, at least in the form observed here, tends to reproduce or deepen existing weaknesses rather than fostering broad-based local welfare improvements.

5.3 Air Quality & Local Environment

The panels in Figure 5 present the staggered Difference-in-Differences estimates of the impact of an Amazon centre opening on local air quality. Consistent with hypothesis H3, the general trend is positive and persistent: Amazon’s arrival leads to higher PM_{10} concentrations, and as such reduced air quality. Even relatively volatile indicators such as mean and median levels of PM concentration (Panels (c) and (d)) tend to be consistently positive over time. More strikingly, the number of days exceeding the PM_{10} danger threshold rises over time, whether measured at the semester (Panel (a)) or yearly level (Panel (b)).

Three considerations help interpret these effects. First, although a single logistics centre in a large urban area is unlikely to substantively shift citywide pollution averages by itself, the consistently positive

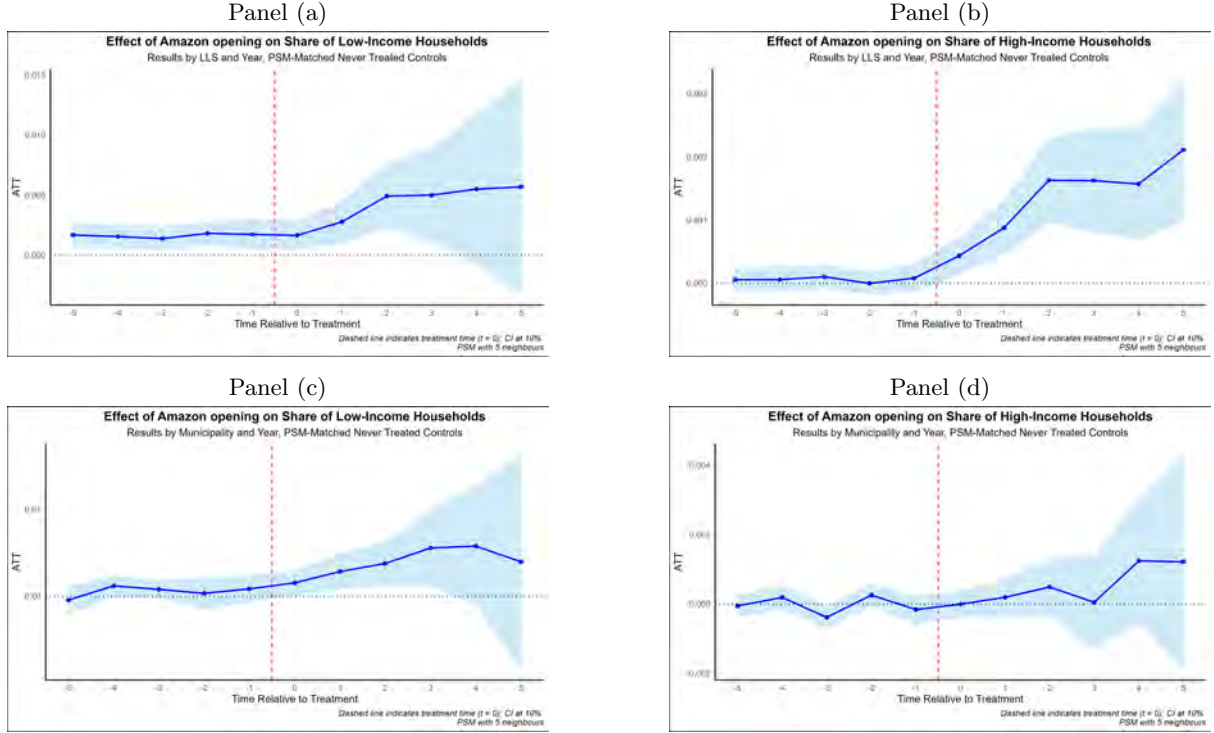


Figure 4: *Dynamic Difference-in-Differences Specification on local income groups distribution*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Share of Low-Income Households (annual income below 15K€) with PSM-Matched Never Treated Controls at the Local Labour System-Year level (Panel (a)); the Share of High-Income Households (annual income above 55K€) with PSM-Matched Never Treated Controls at the Local Labour System-Year level (Panel (b)); the Share of Low-Income Households (annual income below 15K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)); the Share of High-Income Households (annual income above 55K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (d)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

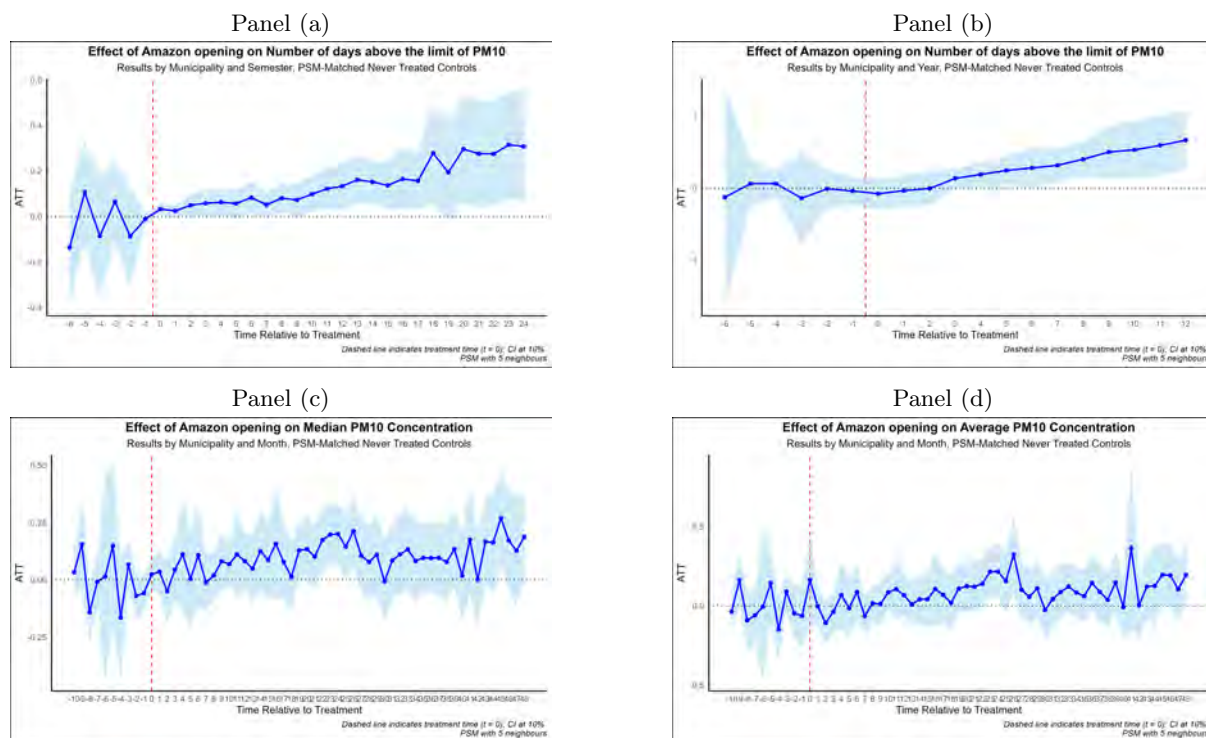


Figure 5: *Dynamic Difference-in-Differences Specifications for Air Quality*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Number of Days Above the PM₁₀ limit with PSM-Matched Never Treated Controls at the Municipality-Semester level (Panel (a)); the Number of Days Above the PM₁₀ limit with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)); the Median concentration of PM₁₀ with PSM-Matched Never Treated Controls at the Municipality-Month level (Panel (c)); the Average concentration of PM₁₀ with PSM-Matched Never Treated Controls at the Municipality-Month level (Panel (d)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

estimates indicate a persistent local deterioration in air quality and therefore a cumulative increase in residents' exposure. A conservative back-of-the-envelope calculation suggests that such increases may translate into approximately 50,000 to 100,000 euros in additional annual short-term medical costs for the Italian society, not considering cumulative life-course effects nor indirect and potentially lethal health hazards (Anderson, 2020; Giaccherini et al., 2021; Palma et al., 2025). This estimate builds on Giaccherini et al. (2021), who quantify a cost of 2,686 euros per 100,000 exposed individuals for a 1 standard deviation increase in PM_{10} concentration in Italy over a similar period to the present study. Using the average population of all treated municipalities (7,916,946) and an observed increase of 0.25–0.5 (Figure 5, Panels (c)–(d)), estimated yearly costs fall between 50,000 and 100,000 euros. Extending the calculation to the full population of treated LLSs raises the estimate to 165,000 to 330,000 euros. Such effects are likely more pronounced in the immediate vicinity of the facilities, an issue that the present data cannot fully capture. Second, Appendix B.10 reports descriptive evidence of the magnitude of these changes in pollution levels, relatively to other areas of the country. In particular, Figure B2 describes the evolution of treated municipalities' ranking over time. It particularly stresses the dynamic of the most and least polluted (top third and bottom half of the distribution), whose rank after the Amazon opening tends to increase by 2 to 6 percentage points. Finally, as noted in section 3.3, given the air quality estimation method, these effects are likely to represent lower-bound effect of Amazon centres' openings.

These findings offer a counterpoint to the argument that e-commerce logistics could reduce urban pollution by limiting consumer trips to retail areas. Even if externalities are spatially concentrated around facilities, the results underscore the uneven distribution of the environmental costs of Logistics Development, costs borne disproportionately by already vulnerable municipalities. In this context, the rise in air pollution appears consistent with two complementary explanations. The first is increased traffic volume and congestion around logistics nodes, mirroring patterns observed in the United States (Allison, 2020; Yuan, 2018, 2021) and Brazil (He et al., 2019). The second is a broader rise in e-commerce activity that adds to, rather than fully replaces, physical mobility and consumer commuting to physical retail stores, consistent with recent evidence from both the US (Chava et al., 2023; Cunningham, 2024) and Italy (Tramontano et al., n.d.). Together, these results reinforce the evidence of environmental risks associated with the expansion of Logistics Development in urban and peri-urban areas.

To test for the possibility that municipalities that host Amazon facilities might be systematically different from the rest of Italian municipalities in their unobservable characteristics leading to the facility opening decisions, and that might be related to the outcomes of interest, Appendix B.11 provides results from specifications using Not-Yet-Treated units as the control group. Although pre-trends are generally stable and not significant, the announcement of an opening likely takes place up to 3 years before its actual opening, potentially creating anticipations by local actors. As such, Appendix B.12 reports results of the different specifications accounting for anticipation effects (through the Callaway and Sant'Anna (2021) *did* package) of up to 3 years¹⁰. Results are qualitatively similar to the main analysis.

Further tests to the robustness of these results are reported, yielding similar results to the main

¹⁰It must be noted that, given the relatively small sample of treated units, this exercise can be imprecise due to several statistical mechanisms when removing periods through the anticipation-control exercise (lack of pre- or post-treatment periods over time, smaller cohorts to estimate period-specific effects,...) (Callaway & Sant'Anna, 2021).

analysis. First, by removing the COVID year (Appendix B.13). Second, by removing the municipality of Piacenza from the treated pool, given that it has opened several years before the next one (2011) and as such could have peculiar dynamics (Appendix B.14). Appendix B.15 reports results removing municipalities which have hosted other openings of logistics hubs in the same year as Amazon's, according to ISPRA data, as in Cuccu and Pontarollo (2024)¹¹.

6 Concluding Remarks

Through the use of different quantitative methodologies, this study brings forward one main stylised fact that connects directly with the growing literature on *logistical geographies* (Coe, 2020), i.e., on how global phenomenon such as globalisation, e-commerce and the rise of logistics have highly uneven territorial impacts. Focusing on Logistics Development as a local development strategy, the analysis uncovers how the spatial expansion of logistics, examined through the case of Amazon, interacts with local socio-economic conditions.

Results highlight how the localisation patterns of the logistics sector are shaped not only by physical and infrastructural factors but also by local economic and social dynamics. Amazon facilities disproportionately locate in areas experiencing economic difficulty, weaker governance capabilities, and structural decline - territories effectively locked in a development trap and therefore particularly vulnerable to the bargaining power of globally powerful firms. These peripheral places and populations attract and host Logistics Development, but, in turn, gain little from it.

Indeed, despite expectations of economic revitalisation, the results provide consistent evidence in support of the idea that the opening of Amazon facilities does not translate into broad-based local economic improvements and instead reinforces pre-existing patterns of socio-economic fragility. Declining average wages, worsening income distributions, the absence of measurable fiscal gains, and negative environmental externalities jointly suggest that Logistics Development yields limited and uneven welfare benefits. The evidence does not support the view that the opening of large logistics centres systematically promotes local development; rather, the analysis suggests limited economic benefits and measurable distributional and environmental costs in host municipalities facing structural decline.

These dynamics are consistent with recent research on territorial regimes and the geography of logistics (Compagnucci et al., 2026; Silvestro et al., 2025), which documents asymmetric bargaining power in areas with weaker institutional capacity.

This study provides two main empirical contributions to the literature. First, it systematically identifies local socio-economic vulnerabilities, usually overlooked, as drivers of logistics location decisions, showing how global firms selectively target vulnerable territories. Second, it documents how these same peripheries bear the brunt of the negative externalities associated with Logistics Development, thereby extending research on spatial inequalities and uneven development.

Although Logistics Development remains attractive to municipalities seeking new economic pathways after decades of industrial decline following globalisation and subsequent crises (Morettini & Compag-

¹¹This exercise comes with the caveat that places where other e-commerce-only operations have opened cannot be excluded, as the data does not allow to distinguish between Amazon- and non-Amazon ones.

nucci, 2024), the evidence presented here further challenges this view. Peripheral territories that host e-commerce logistics serving major urban centres do not reap the anticipated benefits; instead, they absorb negative externalities traditionally hosted by centres, further entrenching socio-economic and environmental inequalities. Consequently, more importance should be placed on rigorous *ex-ante* assessments of the potential impacts of new logistics investments to account for external effects, often overlooked. The findings also further emphasise the need to rethink the governance of logistics-led development strategies to ensure that choices are made under conditions of more symmetric bargaining power. Acknowledging the functional integration among municipalities and fostering appropriate forms of inter-municipal coordination (e.g., through local areas development agencies) would allow for a more balanced allocation of both costs and benefits across the wider local systems, e.g., through local areas development agencies that centralise negotiations with large investors. In addition, this implies that local policymakers who regard Logistics Development as a strategy for economic recovery should adopt a more cautious stance towards private actor's job creation promises, particularly in light of recent reports concerning Amazon's large-scale automation plans (Weise, 2025), or evidence relating to the quality of employment generated within the sector (Nefs, 2024).

This study's findings point to fruitful avenues for future research. First, the broader consequences of Logistics Development, especially those linked to air pollution, warrant further investigation, given its well-documented health effects (Anderson, 2020; Giaccherini et al., 2021; He et al., 2019; Isen et al., 2017), which are particularly acute for children (Beatty & Shimshack, 2014; Simeonova et al., 2021). Second, comparative analyses across European contexts would be valuable, especially given the diversity of urban forms (e.g., polycentric versus monocentric areas) and the resulting differences in environmental externalities this warrants (Cirilli & Veneri, 2014; Veneri, 2010). Third, with the advance of automation (robotics, autonomous driving...), the socio-economic effects documented here could be further reduced or transformed. Future research should examine whether and how automation changes localisation strategies (perhaps making proximity to low-cost labour pools less important) and whether it further concentrates costs and benefits. Finally, access to fine-grained administrative data would allow for a more detailed examination of wage dynamics, the types of job affected, sectoral spillovers, and wider socio-demographic shifts in housing and population movements - allowing to unpack more precisely the "e-inequalities" that e-commerce is quietly delivering to our doorsteps.

References

- Alimahomed-Wilson, J. (2020). The Amazonification of Logistics: E-Commerce, Labor, and Exploitation in the Last Mile. In J. Alimahomed-Wilson & E. Reese (Eds.), *The Cost of Free Shipping: Amazon in the Global Economy* (pp. 69–84). Pluto Press. <https://doi.org/10.2307/j.ctv16zjhj.11>
- Alimahomed-Wilson, J., Allison, J., & Reese, E. (2020). Introduction: Amazon Capitalism. In J. Alimahomed-Wilson & E. Reese (Eds.), *The Cost of Free Shipping: Amazon in the Global Economy* (pp. 1–18). Pluto Press. <https://doi.org/10.2307/j.ctv16zjhj.7>

- Alimahomed-Wilson, J., & Reese, E. (Eds.). (2020). *The Cost of Free Shipping: Amazon in the Global Economy*. Pluto Press. <https://doi.org/10.2307/j.ctv16zjhcj>
- Aljohani, K., & Thompson, R. G. (2016). Impacts of logistics sprawl on the urban environment and logistics: Taxonomy and review of literature. *Journal of Transport Geography*, 57, 255–263. <https://doi.org/10.1016/j.jtrangeo.2016.08.009>
- Allen, J., Browne, M., & Cherrett, T. (2012). Investigating relationships between road freight transport, facility location, logistics management and urban form. *Journal of Transport Geography*, 24, 45–57. <https://doi.org/10.1016/j.jtrangeo.2012.06.010>
- Allison, J. (2020). What Happens when Amazon Comes to Town?: Environmental Impacts, Local Economies, and Resistance in Inland Southern California. In J. Alimahomed-Wilson & E. Reese (Eds.), *The Cost of Free Shipping: Amazon in the Global Economy*. Pluto Press. <https://doi.org/10.2307/j.ctv16zjhcj.18>
- Allison, P. D. (1982). Discrete-Time Methods for the Analysis of Event Histories. *Sociological Methodology*, 13, 61–98. <https://doi.org/10.2307/270718>
- Alonso, W. (1964). *Location and Land Use: Toward a General Theory of Land Rent*. Harvard University Press. <https://doi.org/10.4159/harvard.9780674730854>
- Anderson, M. L. (2020). As the Wind Blows: The Effects of Long-Term Exposure to Air Pollution on Mortality. *Journal of the European Economic Association*, 18(4), 1886–1927. <https://doi.org/10.1093/jeea/jvz051>
- Andreoli, D., Goodchild, A., & Vitasek, K. (2010). The rise of mega distribution centers and the impact on logistical uncertainty. *Transportation Letters*, 2(2), 75–88. <https://doi.org/10.3328/TL.2010.02.02.75-88>
- Bauer, A., & Fernández Guerrico, S. (2023). Effects of E-Commerce on Local Labor Markets. *IZA Institute of Labor Economics Discussion Paper Series*, (16345). <https://doi.org/10.2139/ssrn.4526271>
- Beatty, T. K. M., & Shimshack, J. P. (2014). Air pollution and children’s respiratory health: A cohort analysis. *Journal of Environmental Economics and Management*, 67(1), 39–57. <https://doi.org/10.1016/j.jeem.2013.10.002>
- Beck, N., Katz, J. N., & Tucker, R. (1998). Taking Time Seriously: Time-Series-Cross-Section Analysis with a Binary Dependent Variable. *American Journal of Political Science*, 42(4), 1260–1288. <https://doi.org/10.2307/2991857>
- Bellemare, M. F., & Wichman, C. J. (2020). Elasticities and the Inverse Hyperbolic Sine Transformation. *Oxford Bulletin of Economics and Statistics*, 82(1), 50–61. <https://doi.org/10.1111/obes.12325>
- Bluffstone, R. A., & Ouderkirk, B. (2007). Warehouses, Trucks, and Pm2.5: Human Health and Logistics Industry Growth in the Eastern Inland Empire. *Contemporary Economic Policy*, 25(1), 79–91. <https://doi.org/10.1111/j.1465-7287.2006.00017.x>
- Bonacich, E., & Wilson, J. B. (2008). *Getting the goods: Ports, labor, and the logistics revolution*. Cornell University Press.

- Bowen, J. T. (2008). Moving places: The geography of warehousing in the US. *Journal of Transport Geography*, 16(6), 379–387. <https://doi.org/10.1016/j.jtrangeo.2008.03.001>
- Callaway, B., & Sant’Anna, P. H. (2021). Difference-in-Differences with multiple time periods. *Journal of Econometrics*, 225(2), 200–230. <https://doi.org/10.1016/j.jeconom.2020.12.001>
- Carbonell, J. S. (2024). In search of the twin transition: The limited performativity of the « green and digital » transitions in the European automotive industry. *JRC Working Papers Series on Labour, Education and Technology*, (JRC139578).
- Cerqua, A., Giannantoni, C., Zampollo, F., & Mazziotta, M. (2025). The Municipal Administration Quality Index: The Italian Case. *Social Indicators Research*. <https://doi.org/10.1007/s11205-024-03511-8>
- Charters-Gabanek, K., Raimbault, N., & Hall, P. V. (2024). Logistics and Urban Planning: A Review of Literature. *Journal of Planning Education and Research*, 0739456X241247838. <https://doi.org/10.1177/0739456X241247838>
- Chava, S., Oettl, A., Singh, M., & Zeng, L. (2023). Creative Destruction? Impact of E-Commerce on the Retail Sector. *Management Science*.
- Chay, K., Dobkin, C., & Greenstone, M. (2003). The Clean Air Act of 1970 and Adult Mortality. *Journal of Risk and Uncertainty*, 27(3), 279–300. <https://doi.org/10.1023/A:1025897327639>
- Christopher, M. (2011). *Logistics & supply chain management*. Financial Times Prentice Hall.
- Cidell, J. (2010). Concentration and decentralization: The new geography of freight distribution in US metropolitan areas. *Journal of Transport Geography*, 18(3), 363–371. <https://doi.org/10.1016/j.jtrangeo.2009.06.017>
- Cirilli, A., & Veneri, P. (2014). Spatial Structure and Carbon Dioxide (CO₂) Emissions Due to Commuting: An Analysis of Italian Urban Areas. *Regional Studies*, 48(12), 1993–2005. <https://doi.org/10.1080/00343404.2013.827333>
- Cirillo, V., Massimo, F. S., Rinaldini, M., Staccioli, J., & Virgillito, M. E. (2024). Monopoly Power upon the World of Work: A Workplace Analysis in the Logistics Segment Under Automation. *Review of Political Economy*, 0(0), 1–33. <https://doi.org/10.1080/09538259.2024.2419611>
- Coe, N. M. (2020). Logistical geographies. *Geography Compass*, 14(10), e12506. <https://doi.org/10.1111/gec3.12506>
- Compagnucci, F., Myshko, A., & Perrot, A. (2025). STRUCTURAL CHANGE AND SYSTEMIC STRESS FACTOR: LOCAL IMPACTS OF LOGISTICS IN POMEZIA-SANTA PALOMBA, ITALY. In G. Ceresa, F. Dini, L. Ferrone, F. Martellozzo, F. Randelli, & P. Romei (Eds.), *Memorie Geografiche* (pp. 493–501, Vol. 28). Società di Studi Geografici.
- Compagnucci, F., Myshko, A., & Perrot, A. (2026). When Territory Becomes Logistics: Operationalising Territorial Capital to Explain Local Development Outcomes. *GSSI Discussion Paper Series in Regional Science & Economic Geography*, (2026-05).
- Confetra. (2022). *UE 27 trasporto merci: Ripartizione modale per paese, 2006 (t-km in %)* (tech. rep.).
- Confindustria. (2024). *Industria, Trasporti, Logistica e Infrastrutture: Confindustria presenta documento*.

- Cuccu, L., & Pontarollo, N. (2024). Logistic hubs and support for radical-right populism: Evidence from Italy. *European Journal of Political Economy*, 82, 102522. <https://doi.org/10.1016/j.ejpoleco.2024.102522>
- Cunningham, E. R. (2024, October). Local Labor Market Effects of Amazon.
- Currie, J., & Neidell, M. (2005). Air Pollution and Infant Health: What Can We Learn from California's Recent Experience?*. *The Quarterly Journal of Economics*, 120(3), 1003–1030. <https://doi.org/10.1093/qje/120.3.1003>
- Delfanti, A., & Frey, B. (2021). Humanly Extended Automation or the Future of Work Seen through Amazon Patents. *Science, Technology, & Human Values*, 46(3), 655–682. <https://doi.org/10.1177/0162243920943665>
- Diemer, A., Iammarino, S., Rodríguez-Pose, A., & Storper, M. (2022). The Regional Development Trap in Europe. *Economic Geography*, 98(5), 487–509. <https://doi.org/10.1080/00130095.2022.2080655>
- Dijkstra, L., Poelman, H., & Veneri, P. (2019, December). *The EU-OECD definition of a functional urban area* (OECD Regional Development Working Papers No. 2019/11). <https://doi.org/10.1787/d58cb34d-en>
- Ducruet, C., Polo Martin, B., Sene, M. A., Lo Prete, M., Sun, L., Itoh, H., & Pigné, Y. (2024). Ports and their influence on local air pollution and public health: A global analysis. *Science of The Total Environment*, 915, 170099. <https://doi.org/10.1016/j.scitotenv.2024.170099>
- EEA. (2016). *Air quality in Europe—2016 report*. European Environment Agency. (tech. rep.). Publications Office. LU.
- EEA. (2020). *Air quality in Europe—2020 report*. European Environment Agency. (tech. rep.). Publications Office. LU.
- EEA. (2024). *Impacts of air pollution on ecosystems in Europe. Web Report*. European Environment Agency. (tech. rep.). Publications Office. LU.
- EIT URBAN MOBILITY. (2025, May). *STUDY ON NON-EXHAUST EMISSIONS IN ROAD TRANSPORT* (tech. rep.).
- Filippini, M., Masiero, G., & Steinbach, S. (2019). The impact of ambient air pollution on hospital admissions. *The European Journal of Health Economics*, 20(6), 919–931. <https://doi.org/10.1007/s10198-019-01049-y>
- Firth, D. (1993). Bias reduction of maximum likelihood estimates. *Biometrika*, 80(1), 27–38. <https://doi.org/10.1093/biomet/80.1.27>
- Ganapati, S., & Wong, W. F. (2023). How Far Goods Travel: Global Transport and Supply Chains from 1965-2020. *CESifo Working Papers*, (10398).
- Ganz, B. (2019). La giungla delle coop, subappalti e consorzi affossano la logistica. *Il Sole 24 ORE*.
- García-López, M.-À. (2019). All roads lead to Rome ... and to sprawl? Evidence from European cities. *Regional Science and Urban Economics*, 79, 103467. <https://doi.org/10.1016/j.regsciurbeco.2019.103467>
- Gelman, A., Carlin, J. B., Stern, H. S., & Rubin, D. B. (1995, June). *Bayesian Data Analysis*. Chapman; Hall/CRC. <https://doi.org/10.1201/9780429258411>

- Giaccherini, M., Kopinska, J., & Palma, A. (2021). When particulate matter strikes cities: Social disparities and health costs of air pollution. *Journal of Health Economics*, 78, 102478. <https://doi.org/10.1016/j.jhealeco.2021.102478>
- Glaeser, E. L., & Kohlhase, J. E. (2004). Cities, regions and the decline of transport costs*. *Papers in Regional Science*, 83(1), 197–228. <https://doi.org/10.1007/s10110-003-0183-x>
- González-Cuatianquis, C. J., Faggian, A., & Veneri, P. (2025). Unequal cities, unhappy lives? The role of interpersonal and territorial inequalities in shaping life satisfaction in European cities. *Urban Studies*, 00420980251392160. <https://doi.org/10.1177/00420980251392160>
- Graff Zivin, J., & Neidell, M. (2012). The Impact of Pollution on Worker Productivity. *American Economic Review*, 102(7), 3652–3673. <https://doi.org/10.1257/aer.102.7.3652>
- Gutelius, B. (2015). Disarticulating distribution: Labor segmentation and subcontracting in global logistics. *Geoforum*, 60, 53–61. <https://doi.org/10.1016/j.geoforum.2015.01.009>
- Gutelius, B. (2016). *Global Production Networks “from Below”: Geographies of Labor in Logistics* [PhD Thesis]. University of Illinois at Chicago.
- Guzzardi, D., & Morelli, S. (2024). A New Geography of Inequality: Top Incomes in Italian Regions and Inner Areas. *World Inequality Lab - Working papers*, (2024/19). <https://doi.org/10.31235/osf.io/b2yue>
- Hara, K., Adams, A., Milland, K., Savage, S., Callison-Burch, C., & Bigham, J. P. (2018). A Data-Driven Analysis of Workers’ Earnings on Amazon Mechanical Turk. *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, 1–14. <https://doi.org/10.1145/3173574.3174023>
- He, G., Fan, M., & Zhou, M. (2016). The effect of air pollution on mortality in China: Evidence from the 2008 Beijing Olympic Games. *Journal of Environmental Economics and Management*, 79, 18–39. <https://doi.org/10.1016/j.jeem.2016.04.004>
- He, J., Gouveia, N., & Salvo, A. (2019). External Effects of Diesel Trucks Circulating Inside the São Paulo Megacity. *Journal of the European Economic Association*, 17(3), 947–989. <https://doi.org/10.1093/jeea/jvy015>
- Hesse, M. (2002). Location matters. *Access Magazine*, 1(21), 22–26.
- Holl, A., & Mariotti, I. (2018). Highways and firm performance in the logistics industry. *Journal of Transport Geography*, 72, 139–150. <https://doi.org/10.1016/j.jtrangeo.2018.08.021>
- Houde, J.-F., Newberry, P., & Seim, K. (2017, April). Nexus Tax Laws and Economies of Density in E-Commerce: A Study of Amazon’s Fulfillment Center Network. <https://doi.org/10.3386/w23361>
- Imbens, G. (2000). The role of the propensity score in estimating dose-response functions. *Biometrika*, 87(3), 706–710. <https://doi.org/10.1093/biomet/87.3.706>
- Inês, A., Diniz, A., & Moreira, A. C. (2023). A review of greenwashing and supply chain management: Challenges ahead. *Cleaner Environmental Systems*, 11, 100136. <https://doi.org/10.1016/j.cesys.2023.100136>
- Invernizzi, I. (2022). La logistica a Pavia occupa la campagna con la forza. *Il Post*.

- Isen, A., Rossin-Slater, M., & Walker, W. R. (2017). Every Breath You Take—Every Dollar You’ll Make: The Long-Term Consequences of the Clean Air Act of 1970. *Journal of Political Economy*, 125(3).
- Jia, N., Zhao, B., Zheng, W., & Lu, J. (2022). No Free Lunch After All: Corporate Political Connections and Firms’ Location Choices. *Organization Science*, 33(2), 650–670. <https://doi.org/10.1287/orsc.2021.1451>
- Kassem, S. (2023). *Work and Alienation in the Platform Economy: Amazon and the power of organization*. Bristol University Press.
- Koehler, E., Brown, E., & Haneuse, S. J.-P. A. (2009). On the Assessment of Monte Carlo Error in Simulation-Based Statistical Analyses. *The American statistician*, 63(2), 155–162. <https://doi.org/10.1198/tast.2009.0030>
- Kozawa, K. H., Fruin, S. A., & Winer, A. M. (2009). Near-road air pollution impacts of goods movement in communities adjacent to the Ports of Los Angeles and Long Beach. *Atmospheric Environment*, 43(18), 2960–2970. <https://doi.org/10.1016/j.atmosenv.2009.02.042>
- Krugman, P. (1991). Increasing Returns and Economic Geography. *Journal of Political Economy*, 99(3), 483–499. <https://doi.org/10.1086/261763>
- Lasserre, F. (2004). Logistics and the Internet: Transportation and location issues are crucial in the logistics chain. *Journal of Transport Geography*, 12(1), 73–84. [https://doi.org/10.1016/S0966-6923\(03\)00027-9](https://doi.org/10.1016/S0966-6923(03)00027-9)
- Lehner, L., Parolin, Z., Pignatti, C., & Schmitt, R. (2024). Monopsony Power and Poverty: The Consequences of Walmart Supercenter Openings. *IZA Institute of Labor Economics Discussion Paper Series*, (17323). <https://doi.org/10.2139/ssrn.4975258>
- Leigh, N. G., & Hoelzel, N. Z. (2012). Smart Growth’s Blind Side: Sustainable Cities Need Productive Urban Industrial Land. *Journal of the American Planning Association*, 78(1), 87–103. <https://doi.org/10.1080/01944363.2011.645274>
- Massey, D. (1995). *Spatial Divisions of Labour*. Macmillan Education UK. <https://doi.org/10.1007/978-1-349-24059-3>
- Moretti, E., & Neidell, M. (2011). Pollution, Health, and Avoidance Behavior: Evidence from the Ports of Los Angeles. *Journal of Human Resources*, 46(1), 154–175. <https://doi.org/10.3368/jhr.46.1.154>
- Morettini, G., & Compagnucci, F. (2024). Territorial identity and left-behind places: Evidence from the central Italian Apennines from a time perspective. *Cambridge Journal of Regions, Economy and Society*, 17(1), 117–136. <https://doi.org/10.1093/cjres/rsad049>
- Nefs, M. (2024). *Landscapes of Trade: Towards sustainable spatial planning for the logistics complex in the Netherlands* [Dissertation (TU Delft)]. A+BE — Architecture and the Built Environment. <https://doi.org/10.7480/abe.2024.10>
- Nelli, L., Virgillito, M. E., & Vivarelli, M. (2026). A twin transition or a flagship policy? Emergent constellations and dominant blocks in green and digital technologies. *Energy Policy*, 209, 114954. <https://doi.org/10.1016/j.enpol.2025.114954>

- Nian, Y., & Wang, C. (2023). Go with the Politician. *American Economic Journal: Economic Policy*, 15(2), 467–496. <https://doi.org/10.1257/pol.20200882>
- Palma, A., Depalo, D., & Curci, G. (2025). Air pollution and workplace accidents: Evidence and implications. *Journal of Public Economics*, 252, 105539. <https://doi.org/10.1016/j.jpubeco.2025.105539>
- Perez, L., Künzli, N., Avol, E., Hricko, A. M., Lurmann, F., Nicholas, E., Gilliland, F., Peters, J., & McConnell, R. (2009). Global Goods Movement and the Local Burden of Childhood Asthma in Southern California. *American Journal of Public Health*, 99(S3), S622–S628. <https://doi.org/10.2105/AJPH.2008.154955>
- PwC Italy. (2025). *Logistics Market Report* (tech. rep.). PricewaterhouseCoopers Business Services Srl.
- Raimbault, N. (2022). Outer-suburban politics and the financialisation of the logistics real estate industry: The emergence of financialised coalitions in the Paris region. *Urban Studies*, 59(7), 1481–1498. <https://doi.org/10.1177/00420980211014452>
- Rimmer, P. J., & Kam, B. H. (2018). *Consumer Logistics: Surfing the Digital Wave*. Edward Elgar Publishing.
- Rivera, L., Sheffi, Y., & Knoppen, D. (2016). Logistics clusters: The impact of further agglomeration, training and firm size on collaboration and value added services. *International Journal of Production Economics*, 179, 285–294. <https://doi.org/10.1016/j.ijpe.2016.05.018>
- Rivera, L., Sheffi, Y., & Welsch, R. (2014). Logistics agglomeration in the US. *Transportation Research Part A: Policy and Practice*, 59, 222–238. <https://doi.org/10.1016/j.tra.2013.11.009>
- Rosenbaum, P., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, 70(1), 41–55. <https://doi.org/10.1093/biomet/70.1.41>
- Rubin, D. B. (1973). Matching to Remove Bias in Observational Studies. *Biometrics*, 29(1), 159. <https://doi.org/10.2307/2529684>
- Sakai, T., Beziat, A., & Heitz, A. (2020). Location factors for logistics facilities: Location choice modeling considering activity categories. *Journal of Transport Geography*, 85, 102710. <https://doi.org/10.1016/j.jtrangeo.2020.102710>
- Schlenker, W., & Walker, W. R. (2016). Airports, Air Pollution, and Contemporaneous Health. *The Review of Economic Studies*, 83(2), 768–809. <https://doi.org/10.1093/restud/rdv043>
- Schorung, M., Lecourt, T., & Dablanc, L. (2024). Assessing the spatial footprint of e-commerce logistics differentiating the types of warehouses: The case of Amazon in the United States. *Journal of Transport and Land Use*, 17(1), 647–674. <https://doi.org/10.5198/jtlu.2024.2438>
- Sheffi, Y. (2012, September). *Logistics Clusters: Delivering Value and Driving Growth*. MIT Press.
- Silvestro, E. (2024). ATTRAVERSO I PAESAGGI OPERAZIONALI DEL RINASCIMENTO LOGISTICO DEL NORD ITALIA. L'ALESSANDRINO E IL PIACENTINO COME HINTERLAND LOGISTICI DELLA CITTÀ-REGIONE PADANA. *Memorie Geografiche, Geografia e ecologia politica: teorie, pratiche, discorsi*(24), 687–692. <https://doi.org/Isbn:978-88-94690149>
- Silvestro, E., Gris, A. V., & Salone, C. (2025). Per una political economy degli hinterland logistici: I regimi territoriali della logistica. *Semestrale di Studi e Ricerche di Geografia*, 37(1), 143–159. <https://doi.org/10.13133/2784-9643/18916>

- Simeonova, E., Currie, J., Nilsson, P., & Walker, R. (2021). Congestion Pricing, Air Pollution, and Children’s Health. *Journal of Human Resources*, 56(4), 971–996. <https://doi.org/10.3368/jhr.56.4.0218-9363R2>
- Storper, M., & Walker, R. (1989). *The capitalist imperative: Territory, technology, and industrial growth*. B. Blackwell.
- Tramontano, J., Cirillo, V., & Guarascio, D. (n.d.). The Impact of Amazon on Italian Local Labor Markets: A Staggered Difference-in-Differences Approach.
- Vallas, S. P., Johnston, H., & Mommadova, Y. (2022). Prime Suspect: Mechanisms of Labor Control at Amazon’s Warehouses. *Work and Occupations*, 49(4), 421–456. <https://doi.org/10.1177/07308884221106922>
- Veneri, P. (2010). Urban Polycentricity and the Costs of Commuting: Evidence from Italian Metropolitan Areas. *Growth and Change*, 41(3), 403–429. <https://doi.org/10.1111/j.1468-2257.2010.00531.x>
- Verhetsel, A., Kessels, R., Goos, P., Zijlstra, T., Blomme, N., & Cant, J. (2015). Location of logistics companies: A stated preference study to disentangle the impact of accessibility. *Journal of Transport Geography*, 42, 110–121. <https://doi.org/10.1016/j.jtrangeo.2014.12.002>
- Wachsmuth, D. (2017). Infrastructure Alliances: Supply-Chain Expansion and Multi-city Growth Coalitions. *Economic Geography*, 93(1), 44–65. <https://doi.org/10.1080/00130095.2016.1199263>
- Weber, A. (1929). *Alfred Weber’s theory of the location of industries* (C. J. (J. Friedrich, Ed.). Chicago, Ill., The University of Chicago Press.
- Weise, K. (2025). Amazon Plans to Replace More Than Half a Million Jobs With Robots. *The New York Times*.
- West, E. (2022, November). Decoding Amazon’s Climate Pledge. Public Relations and the Platformization of Governance. In P. Smith, A. Monea, & M. Santiago (Eds.), *Amazon: At the Intersection of Culture and Capital*. Rowman & Littlefield.
- Wiltshire, J. C. (2023). Walmart Supercenters and Monopsony Power: How a Large, Low-Wage Employer Impacts Local Labor Markets.
- Woudsma, C., Jensen, J. F., Kanaroglou, P., & Maoh, H. (2008). Logistics land use and the city: A spatial–temporal modeling approach. *Transportation Research Part E: Logistics and Transportation Review*, 44(2), 277–297. <https://doi.org/10.1016/j.tre.2007.07.006>
- Yuan, Q. (2018). Environmental Justice in Warehousing Location: State of the Art. *Journal of Planning Literature*, 33(3), 287–298. <https://doi.org/10.1177/0885412217753841>
- Yuan, Q. (2021). Location of Warehouses and Environmental Justice. *Journal of Planning Education and Research*, 41(3), 282–293. <https://doi.org/10.1177/0739456X18786392>

A Supplementary Materials

A.1 Local Development Traps' Definition and Additional Details

Building on Diemer et al. (2022) and recent literature on development traps, this study proposes an adaptation of the Development Trap Index at a finer geographical scale, i.e., the Local Labour System level. The variable is based on a set of dummies that capture the relative performance of a Local Labour System (over time and compared to the country) for the set of five variables defined in section 3.2 (Income per Taxpayer; Wages per wage-earner; Employment-to-Population ratio; Employment Rate; Active-to-Inactive ratio).

For each variable y over period $n = 4$ in LLS i at time t , the variable's growth rate is defined as:

$$g_{i,t,t-n} = \frac{1}{n} \cdot \ln\left(\frac{y_{i,t}}{y_{i,t-n}}\right) \quad (\text{A.1})$$

and the acceleration rate as the growth over n years minus the growth over $2n$ years:

$$a_{i,t}^{LLS} = g_{i,t,t-n} - g_{i,t-n,t-2n} \quad (\text{A.2})$$

The deviation from the Italian national rate for each LLS i is defined as the growth over n years minus the national-level growth over n years:

$$a_{i,t}^{IT} = g_{i,t,t-n} - g_{i,t,t-n}^{IT} \quad (\text{A.3})$$

Which leads to the definition of dummies $D_{i,t}^{y,LLS}$ and $D_{i,t}^{y,IT}$ with value 1 for positive accelerations and 0 otherwise. Finally, the Local Development Trap index $LDT_{i,t}$ is defined as:

$$LDT_{i,t} = 1 - \frac{\sum_y D_{i,t}^{y,LLS} + \sum_y D_{i,t}^{y,IT}}{10} \quad (\text{A.4})$$

Similarly to Diemer et al. (2022), this gives the Local Development Trap Index a value between 0 and 1, that corresponds to the risk of being trapped for the LLS i in year t .

Correlation Matrix

Table A1: *Correlation Matrix between All Variables Used in the Index*

	LLS					IT				
	Inc/pc	Wage/pw	Emp/pop	Act/Inac	Emp. Rate	Inc/pc	Wage/pw	Emp/pop	Act/Inac	Emp. Rate
LLS Inc/pc	1.0000									
LLS Wage/pw	0.8913	1.0000								
LLS Emp/pop	0.6879	0.6763	1.0000							
LLS Act/Inac	0.6712	0.6606	0.8181	1.0000						
LLS Emp Rat	0.4670	0.5627	0.6908	0.6844	1.0000					
IT Inc/pc	0.5021	0.1992	0.0115	0.0495	-0.1583	1.0000				
IT Wage/pw	0.4268	0.2276	0.0226	0.0686	-0.1529	0.8586	1.0000			
IT Emp/pop	0.0267	0.0458	0.1041	0.0169	0.3130	0.0847	0.1706	1.0000		
IT Act/Inac	0.0718	0.0692	0.0176	0.1023	-0.0947	0.1596	0.3153	0.1757	1.0000	
IT Emp Rat	-0.2109	-0.0805	0.0807	-0.0387	0.3989	-0.3961	-0.3847	0.7915	-0.2020	1.0000

Note:

Pearson's pairwise correlation coefficients between all variables. Inc/pc: Income per Capita; Wage/pw: Wage per Worker; Emp/pop: employment to population ratio; Act/Inac: Active to Inactive ratio; Emp. Rate: Employment Rate.

A.2 Variable Definition, Sources and Descriptive Statistics

Table A2: Variable description, data sources and descriptive statistics

Panel a: Variable description and data source

Variable	Definition	Data Source
Railway Accessibility	Accessibility to the railway network, as per ISTAT's gravity model	ISTAT
Motorway Accessibility	Accessibility to the motorway network, as per ISTAT's gravity model	ISTAT
Airports Accessibility	Accessibility to airports, as per ISTAT's gravity model	ISTAT
Ports Accessibility	Accessibility to ports, as per ISTAT's gravity model	ISTAT
MAQI – Fiscal and Economic Performances	MAQI sub-index assessed through: Spending rigidity, Spending capacity, Collection capacity and Share of budget for investment.	Cerqua et al. (2025)
MAQI – Quality of Local Bureaucracy	MAQI sub-index assessed through: Average years of education, N° of bureaucrats per 1000 inhabitants, Average n° of absences and Turnover rate.	Cerqua et al. (2025)
MAQI – Local Politician Quality	MAQI sub-index assessed through: Average years of education, Gender balance index and Proportion of white-collar workers.	Cerqua et al. (2025)
Total Pop. in LLS (log)	Log of total population in Local Labor Systems	Own elaboration on ISTAT data
Distance to closest High Pop. FUA	Distance to the nearest Functional Urban Area with more than 250.000 inhabitants	Own elaboration on ISTAT data
LLS in Development Trap	Dummy indicating whether the municipality's LLS is in a development trap over the studied period, as per the definition in Section 3.2	ISTAT, ASIA-ISTAT, IRPEF/MEF,
Provincial Capital	Dummy indicating whether the municipality is a provincial capital	ISTAT
Logistics Employment	Number of employees in the general logistics sector - ATECO H, "Transport & Warehousing"	ASIA-ISTAT
Warehousing Employment	Number of employees in warehousing - ATECO 52, "Warehousing, storage and transport support activities"	ASIA-ISTAT
Percent of Land Used	Share of municipality's land area classified as developed	JRC-ISPRA

Panel a (continued)

Days Above PM ₁₀ Limit	Number of days exceeding PM ₁₀ concentration daily limit	CAMS
Average PM ₁₀ Concentration	Average PM ₁₀ annual concentration	CAMS
Median PM ₁₀ Concentration	Median PM ₁₀ annual concentration	CAMS
Average work-related income	Ratio of the total declared wage labour income on the total number of taxpayers declaring wage labour income.	IRPEF-MEF
Wage Earners number	Total number of taxpayers declaring wage labour income.	IRPEF-MEF
Share of Low-Income Households	Share of taxpayer households with an annual income below 15,000€ on total taxpayer households	IRPEF-MEF
Share of High-Income Households	Share of taxpayer households with an annual income above 55,000€ on total taxpayer households	IRPEF-MEF
Share of Middle-Income Households	Share of taxpayer households with an annual income between 15,000€ and 55,000€ on total taxpayer households	IRPEF-MEF

Panel b: Descriptive Statistics

Variable	N	Mean (SD)	Min	Max
Railway Accessibility	110,635	2.58 (5.17)	0	100
Motorway Accessibility	110,635	33.65 (23.34)	0	100
Airports Accessibility	110,635	4.32 (6.52)	0	100
Ports Accessibility	110,635	0.81 (4.15)	0	100
MAQI - Fiscal and Economic Performances	100,399	101.93 (4.82)	66.112	120.373
MAQI - Quality of Local Bureaucracy	100,399	100.37 (4.49)	65.075	120.920
MAQI - Local Politician Quality	100,399	105.47 (9.39)	80.588	138.724
Total Pop. in LLS (log)	110,635	11.48 (1.34)	7.971	15.186
Distance to closest High Pop. FUA	110,502	61.28 (37.43)	0.206	275.836

Panel b (continued)

LLS In Development Trap	110,516	0.32 (0.47)	0	1
Provincial Capital	110,502	0.01 (0.12)	0	1
Logistics Employment (IHS)	100,810	3.54 (1.89)	0	12.156
Warehousing Employment (IHS)	79,819	1.72 (2.08)	0	11.189
Percent of Land Used	78,930	9.92 (10.14)	0.250	91.650
Days Above PM ₁₀ Limit	95,181	0.04 (0.78)	0	43
Average PM ₁₀ Concentration	95,181	1.54 (1.62)	0.033	75
Median PM ₁₀ Concentration	95,181	1.31 (1.42)	0.033	75
Average work-related income (log)	110,535	9.83 (0.21)	8.77	11.39
Wage Earners number (log)	110,535	6.79 (1.42)	1.61	13.95
Share of Low-Income Households	110,496	0.47 (0.13)	0	0.89
Share of High-Income Households	110,496	0.03 (0.02)	0	0.31
Share of Middle-Income Households	110,496	0.50 (0.11)	0.11	1

B Supplementary Results

B.1 Logistics Location Behaviour, Neighbourhood-Level Regression

Table B1: *Within Region, Probit Regression Results, OMI-Year Level*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.0002 (0.002)	0.0001 (0.002)	−0.0003 (0.002)	−0.001 (0.002)	0.001 (0.003)
Motorway Accessibility	0.011*** (0.002)	0.011*** (0.002)	0.011*** (0.002)	0.009*** (0.002)	0.011*** (0.002)
Airports Accessibility	−0.013*** (0.004)	−0.012*** (0.004)	−0.013*** (0.004)	−0.013*** (0.004)	−0.012*** (0.004)
Ports Accessibility	−0.005 (0.007)	−0.005 (0.007)	−0.008 (0.008)	−0.010 (0.009)	−0.008 (0.008)
MAQI - Fiscal and Economic Performances	0.054*** (0.010)	0.006 (0.012)	0.008 (0.012)	0.011 (0.013)	0.006 (0.013)
MAQI - Quality of Local Bureaucracy	−0.044*** (0.006)	−0.029*** (0.007)	−0.029*** (0.007)	−0.028*** (0.008)	−0.030*** (0.007)
MAQI - Local Politician Quality	0.013*** (0.003)	0.006* (0.004)	0.007* (0.004)	0.009** (0.004)	0.006* (0.004)
Total Pop. in LLS (log)	0.016 (0.018)	0.012 (0.018)	0.031 (0.024)	0.039 (0.025)	0.042* (0.025)
Distance to closest High Pop. FUA	−0.001 (0.001)	−0.001 (0.001)	−0.002 (0.001)	−0.002 (0.002)	−0.002 (0.002)
LLS In Development Trap	0.562*** (0.121)	0.472*** (0.129)	0.564*** (0.135)	0.526*** (0.136)	0.577*** (0.137)
Provincial Capital	−0.635*** (0.099)	−0.642*** (0.102)	−0.662*** (0.102)	−0.648*** (0.096)	−0.653*** (0.104)
Logistics Employment (IHS)	0.296*** (0.024)	0.295*** (0.025)	0.298*** (0.025)		0.299*** (0.026)
Warehousing Employment (IHS)				0.271*** (0.021)	
Central Zone (B)	−0.186** (0.079)	−0.263*** (0.083)	−0.285*** (0.084)	−0.294*** (0.086)	−0.280*** (0.084)
Semi-Central Zone (C)	−0.705*** (0.208)	−0.810*** (0.214)	−0.799*** (0.211)	−0.808*** (0.212)	−0.798*** (0.213)
Peripheral Zone (D)	0.165*** (0.064)	0.101 (0.067)	0.099 (0.068)	0.110 (0.069)	0.111 (0.069)
Suburban Zone (E)	0.112 (0.071)	0.042 (0.075)	0.027 (0.075)	0.029 (0.078)	0.023 (0.077)
Extra-Urban Zone (R)	−0.100 (0.103)	−0.189* (0.105)	−0.234** (0.108)	−0.321*** (0.123)	−0.219** (0.108)
Percent of Land Used					−0.002 (0.003)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	328,390	328,390	328,390	276,300	226,134
Log Likelihood	−1,358.294	−1,265.933	−1,251.339	−1,179.684	−1,225.836
Akaike Inf. Crit.	2,790.588	2,629.865	2,614.678	2,471.368	2,557.672

Note:

*p<0.1; **p<0.05; ***p<0.01
 Year and Region fixed effects included but not reported
 Socio-Demographic classification included but not reported

B.2 Fulfilment Centres and Delivery Stations Location Behaviour

Table B2: *Within Region, Fulfilment/Sortation Centre Probit Regression Results, Municipal-Year Level*

	<i>Dependent variable: Amazon Fulfilment/Sortation Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.006 (0.006)	−0.007 (0.006)	−0.012* (0.006)	−0.012* (0.007)	−0.006 (0.007)
Motorway Accessibility	0.016*** (0.003)	0.017*** (0.003)	0.016*** (0.003)	0.013*** (0.003)	0.016*** (0.003)
Airports Accessibility	−0.002 (0.005)	−0.001 (0.005)	0.0002 (0.006)	−0.003 (0.006)	0.002 (0.006)
Ports Accessibility	−2.250*** (0.859)	−2.329*** (0.884)	−1.564* (0.854)	−1.497* (0.870)	−1.602* (0.876)
MAQI - Fiscal and Economic Performances	0.062*** (0.017)	0.021 (0.020)	0.030 (0.020)	0.035 (0.022)	0.024 (0.021)
MAQI - Quality of Local Bureaucracy	−0.042*** (0.009)	−0.033*** (0.010)	−0.033*** (0.010)	−0.034*** (0.011)	−0.033*** (0.010)
MAQI - Local Politician Quality	0.019*** (0.006)	0.012** (0.006)	0.015** (0.006)	0.020*** (0.007)	0.014** (0.007)
Total Pop. in LLS (log)	−0.155*** (0.050)	−0.163*** (0.051)	−0.077 (0.068)	−0.091 (0.075)	−0.023 (0.072)
Distance to closest High Pop. FUA	0.001 (0.003)	0.001 (0.003)	−0.004 (0.003)	−0.005 (0.004)	−0.006 (0.004)
LLS In Development Trap	0.097 (0.346)	−0.001 (0.360)	0.133 (0.357)	0.196 (0.356)	0.123 (0.358)
Provincial Capital	−0.080 (0.191)	−0.070 (0.198)	−0.095 (0.198)	−0.167 (0.202)	−0.043 (0.206)
Logistics Employment (IHS)	0.349*** (0.039)	0.346*** (0.040)	0.370*** (0.041)		0.392*** (0.043)
Warehousing Employment (IHS)				0.355*** (0.036)	
Percent of Land Used					−0.018** (0.007)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631
Log Likelihood	−394.268	−376.012	−356.707	−308.615	−336.948
Akaike Inf. Crit.	852.536	840.025	815.415	719.230	769.896

Note:

*p<0.1; **p<0.05; ***p<0.01
 Year and Region fixed effects included but not reported
 Socio-Demographic classification included but not reported

Table B3: *Within Region, Delivery Station Probit Regression Results, Municipal-Year Level*

	<i>Dependent variable: Amazon Delivery Station Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.009** (0.004)	−0.010** (0.004)	−0.009* (0.005)	−0.003 (0.004)	−0.007 (0.005)
Motorway Accessibility	0.011*** (0.003)	0.011*** (0.003)	0.011*** (0.003)	0.009*** (0.003)	0.012*** (0.003)
Airports Accessibility	−0.010** (0.005)	−0.010* (0.006)	−0.010* (0.006)	−0.005 (0.006)	−0.010* (0.006)
Ports Accessibility	−0.016 (0.011)	−0.016 (0.013)	−0.020 (0.014)	−0.015 (0.014)	−0.018 (0.014)
MAQI - Fiscal and Economic Performances	0.065*** (0.017)	−0.010 (0.022)	−0.014 (0.023)	−0.010 (0.022)	−0.017 (0.023)
MAQI - Quality of Local Bureaucracy	−0.037*** (0.013)	0.007 (0.019)	0.005 (0.019)	0.013 (0.019)	0.005 (0.019)
MAQI - Local Politician Quality	0.035*** (0.006)	0.024*** (0.007)	0.024*** (0.007)	0.025*** (0.007)	0.024*** (0.007)
Total Pop. in LLS (log)	0.420*** (0.062)	0.470*** (0.068)	0.569*** (0.095)	0.576*** (0.095)	0.586*** (0.097)
Distance to closest High. Pop. FUA	0.0005 (0.002)	0.001 (0.003)	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)
LLS In Development Trap	0.860*** (0.205)	0.816*** (0.235)	0.705*** (0.265)	0.608** (0.261)	0.726*** (0.266)
Provincial Capital	−0.299* (0.169)	−0.279 (0.182)	−0.246 (0.190)	0.086 (0.174)	−0.252 (0.189)
Logistics employment (IHS)	0.515*** (0.046)	0.542*** (0.050)	0.555*** (0.052)		0.564*** (0.052)
Warehousing employment (IHS)				0.356*** (0.037)	
Percent of Land Used					−0.005 (0.005)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631
Log Likelihood	−518.811	−442.078	−432.905	−433.661	−432.325
Akaike Inf. Crit.	1,101.622	972.157	967.811	969.322	960.651

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

B.3 Alternative Development Trap (DT) Definition Thresholds

Table B4: *Within-Region Probit Regression Results, Alternative DT Threshold (0.6), Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.009*** (0.003)	−0.008** (0.004)	−0.008** (0.004)	−0.006 (0.004)	−0.005 (0.004)
Motorway Accessibility	0.012*** (0.002)	0.013*** (0.002)	0.013*** (0.002)	0.011*** (0.002)	0.013*** (0.002)
Airports Accessibility	−0.008** (0.004)	−0.008* (0.004)	−0.009** (0.004)	−0.009* (0.005)	−0.008* (0.004)
Ports Accessibility	−0.013 (0.010)	−0.012 (0.010)	−0.014 (0.012)	−0.013 (0.012)	−0.014 (0.011)
MAQI - Fiscal and Economic Performances	0.064*** (0.013)	0.011 (0.015)	0.014 (0.015)	0.015 (0.016)	0.009 (0.015)
MAQI - Quality of Local Bureaucracy	−0.044*** (0.008)	−0.026*** (0.010)	−0.025*** (0.010)	−0.020* (0.011)	−0.026*** (0.010)
MAQI - Local Politician Quality	0.026*** (0.004)	0.017*** (0.005)	0.019*** (0.005)	0.024*** (0.005)	0.018*** (0.005)
Total Pop. in LLS (log)	0.033 (0.035)	0.042 (0.037)	0.094** (0.047)	0.115** (0.050)	0.128*** (0.049)
Distance to closest High. Pop. FUA	−0.004** (0.002)	−0.004** (0.002)	−0.004** (0.002)	−0.004* (0.002)	−0.004** (0.002)
LLS In Development Trap (Alternative Measure, > 0.6)	0.455*** (0.077)	0.296*** (0.087)	0.279*** (0.090)	0.287*** (0.096)	0.236*** (0.091)
Provincial Capital	−0.146 (0.121)	−0.111 (0.128)	−0.161 (0.129)	−0.066 (0.125)	−0.131 (0.131)
Logistics employment (IHS)	0.461*** (0.032)	0.461*** (0.033)	0.471*** (0.033)		0.479*** (0.034)
Warehousing employment (IHS)				0.380*** (0.027)	
Percent of Land Used					−0.006 (0.004)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631
Log Likelihood	−858.418	−788.421	−776.649	−722.125	−753.526
Akaike Inf. Crit.	1,780.836	1,664.842	1,655.298	1,546.251	1,603.051

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

Table B5: *Within-Region Probit Regression Results, Alternative DT Threshold (0.65), Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.010*** (0.003)	−0.010*** (0.004)	−0.008** (0.004)	−0.006* (0.004)	−0.006 (0.004)
Motorway Accessibility	0.013*** (0.002)	0.013*** (0.002)	0.014*** (0.002)	0.011*** (0.002)	0.013*** (0.002)
Airports Accessibility	−0.009** (0.004)	−0.008* (0.004)	−0.009** (0.004)	−0.009** (0.005)	−0.009** (0.004)
Ports Accessibility	−0.012 (0.010)	−0.012 (0.010)	−0.014 (0.012)	−0.013 (0.012)	−0.014 (0.011)
MAQI - Fiscal and Economic Performances	0.062*** (0.013)	0.010 (0.015)	0.012 (0.015)	0.013 (0.016)	0.008 (0.015)
MAQI - Quality of Local Bureaucracy	−0.044*** (0.008)	−0.025*** (0.010)	−0.025** (0.010)	−0.019* (0.011)	−0.026*** (0.010)
MAQI - Local Politician Quality	0.026*** (0.004)	0.018*** (0.005)	0.019*** (0.005)	0.023*** (0.005)	0.018*** (0.005)
Total Pop. in LLS (log)	0.014 (0.035)	0.017 (0.038)	0.069 (0.048)	0.094* (0.051)	0.105** (0.051)
Distance to closest High. Pop. FUA	−0.004** (0.002)	−0.004** (0.002)	−0.004** (0.002)	−0.004* (0.002)	−0.004** (0.002)
LLS In Development Trap (Alternative Measure, > 0.65)	0.645*** (0.096)	0.529*** (0.108)	0.466*** (0.113)	0.455*** (0.119)	0.423*** (0.115)
Provincial Capital	−0.092 (0.121)	−0.064 (0.128)	−0.119 (0.129)	−0.022 (0.126)	−0.094 (0.132)
Logistics employment (IHS)	0.462*** (0.032)	0.463*** (0.033)	0.472*** (0.033)		0.480*** (0.034)
Warehousing employment (IHS)				0.380*** (0.027)	
Percent of Land Used					−0.006* (0.004)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631
Log Likelihood	−852.824	−782.096	−773.015	−719.426	−750.191
Akaike Inf. Crit.	1,769.648	1,652.193	1,648.029	1,540.852	1,596.382

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

Table B6: *Within-Region Probit Regression Results, Alternative DT Threshold (0.7), Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.010*** (0.003)	−0.010*** (0.004)	−0.009** (0.004)	−0.006* (0.004)	−0.006 (0.004)
Motorway Accessibility	0.013*** (0.002)	0.013*** (0.002)	0.014*** (0.002)	0.011*** (0.002)	0.013*** (0.002)
Airports Accessibility	−0.009** (0.004)	−0.008* (0.004)	−0.009** (0.004)	−0.009** (0.005)	−0.009** (0.004)
Ports Accessibility	−0.013 (0.010)	−0.012 (0.010)	−0.014 (0.012)	−0.013 (0.012)	−0.014 (0.011)
MAQI - Fiscal and Economic Performances	0.062*** (0.013)	0.010 (0.015)	0.012 (0.015)	0.013 (0.016)	0.008 (0.015)
MAQI - Quality of Local Bureaucracy	−0.043*** (0.008)	−0.025*** (0.010)	−0.024** (0.010)	−0.019* (0.011)	−0.026*** (0.010)
MAQI - Local Politician Quality	0.026*** (0.004)	0.018*** (0.005)	0.019*** (0.005)	0.023*** (0.005)	0.018*** (0.005)
Total Pop. in LLS (log)	0.013 (0.035)	0.016 (0.038)	0.069 (0.048)	0.093* (0.051)	0.104** (0.051)
Distance to closest High. Pop. FUA	−0.004** (0.002)	−0.004** (0.002)	−0.004** (0.002)	−0.004* (0.002)	−0.004** (0.002)
LLS In Development Trap (Alternative Measure, > 0.7)	0.649*** (0.096)	0.535*** (0.108)	0.474*** (0.112)	0.467*** (0.118)	0.431*** (0.114)
Provincial Capital	−0.090 (0.121)	−0.062 (0.128)	−0.117 (0.129)	−0.020 (0.126)	−0.092 (0.132)
Logistics employment (IHS)	0.462*** (0.032)	0.463*** (0.033)	0.472*** (0.033)		0.480*** (0.034)
Warehousing employment (IHS)				0.380*** (0.027)	
Percent of Land Used					−0.006* (0.004)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631
Log Likelihood	−852.472	−781.744	−772.605	−718.948	−749.846
Akaike Inf. Crit.	1,768.943	1,651.489	1,647.210	1,539.895	1,595.692

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

Table B7: *Within-Region Probit Regression Results, Alternative DT Threshold (0.8), Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.007** (0.003)	−0.007** (0.003)	−0.007* (0.004)	−0.005 (0.004)	−0.004 (0.004)
Motorway Accessibility	0.013*** (0.002)	0.013*** (0.002)	0.014*** (0.002)	0.012*** (0.002)	0.014*** (0.002)
Airports Accessibility	−0.008** (0.004)	−0.008* (0.004)	−0.009** (0.004)	−0.009* (0.004)	−0.008* (0.004)
Ports Accessibility	−0.011 (0.009)	−0.010 (0.010)	−0.013 (0.011)	−0.012 (0.012)	−0.012 (0.011)
MAQI - Fiscal and Economic Performances	0.069*** (0.012)	0.010 (0.015)	0.013 (0.015)	0.015 (0.016)	0.008 (0.016)
MAQI - Quality of Local Bureaucracy	−0.046*** (0.008)	−0.026*** (0.010)	−0.025*** (0.010)	−0.020* (0.011)	−0.027*** (0.010)
MAQI - Local Politician Quality	0.026*** (0.004)	0.016*** (0.005)	0.018*** (0.005)	0.023*** (0.005)	0.017*** (0.005)
Total Pop. in LLS (log)	0.086** (0.034)	0.081** (0.036)	0.146*** (0.048)	0.164*** (0.051)	0.181*** (0.050)
Distance to closest High. Pop. FUA	−0.002 (0.002)	−0.003 (0.002)	−0.004* (0.002)	−0.003 (0.002)	−0.004* (0.002)
LLS In Development Trap (Alternative Measure, > 0.8)	0.496*** (0.150)	0.413** (0.161)	0.566*** (0.171)	0.482*** (0.176)	0.580*** (0.174)
Provincial Capital	−0.101 (0.122)	−0.073 (0.129)	−0.110 (0.130)	−0.020 (0.127)	−0.082 (0.132)
Logistics employment (IHS)	0.446*** (0.031)	0.451*** (0.033)	0.462*** (0.033)		0.473*** (0.034)
Warehousing employment (IHS)				0.374*** (0.027)	
Percent of Land Used					−0.007* (0.004)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631
Log Likelihood	−870.478	−791.059	−776.413	−723.113	−751.747
Akaike Inf. Crit.	1,804.957	1,670.118	1,654.825	1,548.226	1,599.494

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

Table B8: *Within-Region Probit Regression Results, Alternative FT Threshold (0.85), Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.006** (0.003)	−0.006* (0.003)	−0.006* (0.003)	−0.004 (0.003)	−0.004 (0.004)
Motorway Accessibility	0.012*** (0.002)	0.013*** (0.002)	0.013*** (0.002)	0.011*** (0.002)	0.013*** (0.002)
Airports Accessibility	−0.008** (0.004)	−0.008* (0.004)	−0.009** (0.004)	−0.009** (0.004)	−0.008* (0.004)
Ports Accessibility	−0.011 (0.011)	−0.010 (0.012)	−0.011 (0.013)	−0.010 (0.013)	−0.010 (0.012)
MAQI - Fiscal and Economic Performances	0.069*** (0.012)	0.010 (0.015)	0.013 (0.015)	0.015 (0.016)	0.008 (0.015)
MAQI - Quality of Local Bureaucracy	−0.045*** (0.008)	−0.026*** (0.010)	−0.025** (0.010)	−0.020* (0.011)	−0.026*** (0.010)
MAQI - Local Politician Quality	0.027*** (0.004)	0.017*** (0.005)	0.019*** (0.005)	0.023*** (0.005)	0.018*** (0.005)
Total Pop. in LLS (log)	0.079** (0.034)	0.075** (0.036)	0.131*** (0.047)	0.152*** (0.051)	0.162*** (0.050)
Distance to closest High. Pop. FUA	−0.002 (0.002)	−0.002 (0.002)	−0.003 (0.002)	−0.002 (0.002)	−0.003 (0.002)
LLS In Development Trap (Alternative Measure, > 0.85)	0.855*** (0.263)	0.781*** (0.284)	0.948*** (0.322)	0.914*** (0.336)	0.908*** (0.328)
Provincial Capital	−0.159 (0.122)	−0.122 (0.129)	−0.179 (0.130)	−0.092 (0.127)	−0.151 (0.132)
Logistics employment (IHS)	0.456*** (0.032)	0.459*** (0.033)	0.471*** (0.033)		0.480*** (0.034)
Warehousing employment (IHS)				0.381*** (0.027)	
Percent of Land Used					−0.006 (0.004)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631
Log Likelihood	−870.320	−790.384	−776.978	−722.817	−752.899
Akaike Inf. Crit.	1,804.639	1,668.767	1,655.957	1,547.633	1,601.797

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

Table B9: *Within-Region Probit Regression Results, Alternative FT Threshold (0.9), Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.006** (0.003)	−0.006* (0.003)	−0.006 (0.004)	−0.003 (0.004)	−0.003 (0.004)
Motorway Accessibility	0.013*** (0.002)	0.013*** (0.002)	0.014*** (0.002)	0.011*** (0.002)	0.013*** (0.002)
Airports Accessibility	−0.008** (0.004)	−0.008* (0.004)	−0.009** (0.004)	−0.009** (0.004)	−0.008* (0.004)
Ports Accessibility	−0.011 (0.011)	−0.009 (0.012)	−0.013 (0.013)	−0.012 (0.013)	−0.012 (0.013)
MAQI - Fiscal and Economic Performances	0.068*** (0.012)	0.009 (0.015)	0.013 (0.015)	0.015 (0.016)	0.008 (0.015)
MAQI - Quality of Local Bureaucracy	−0.046*** (0.008)	−0.026*** (0.010)	−0.025*** (0.010)	−0.020* (0.011)	−0.026*** (0.010)
MAQI - Local Politician Quality	0.027*** (0.004)	0.017*** (0.005)	0.019*** (0.005)	0.024*** (0.005)	0.018*** (0.005)
Total Pop. in LLS (log)	0.081** (0.034)	0.076** (0.036)	0.129*** (0.047)	0.150*** (0.050)	0.162*** (0.049)
Distance to closest High. Pop. FUA	−0.001 (0.002)	−0.002 (0.002)	−0.003 (0.002)	−0.002 (0.002)	−0.003 (0.002)
LLS In Development Trap (Alternative Measure, > 0.9)	1.072*** (0.298)	1.020*** (0.323)	1.373*** (0.416)	1.309*** (0.436)	1.398*** (0.439)
Provincial Capital	−0.148 (0.123)	−0.111 (0.129)	−0.161 (0.131)	−0.074 (0.127)	−0.133 (0.133)
Logistics employment (IHS)	0.455*** (0.032)	0.458*** (0.033)	0.469*** (0.033)		0.479*** (0.034)
Warehousing employment (IHS)				0.378*** (0.027)	
Percent of Land Used					−0.007* (0.004)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631
Log Likelihood	−868.933	−789.105	−774.895	−721.199	−750.590
Akaike Inf. Crit.	1,801.867	1,666.210	1,651.791	1,544.398	1,597.180

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

B.4 Logistics Location Behaviour, Individual Development Trap components

Table B10: *Probit Regression Results, Individual Development Trap Components, Municipal-Year Level*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.005 (0.003)	−0.005 (0.004)	−0.004 (0.004)	−0.002 (0.004)	−0.001 (0.004)
Motorway Accessibility	0.013*** (0.002)	0.013*** (0.002)	0.014*** (0.002)	0.012*** (0.002)	0.014*** (0.002)
Airports Accessibility	−0.008** (0.004)	−0.006 (0.004)	−0.007* (0.004)	−0.006 (0.004)	−0.006 (0.004)
Ports Accessibility	−0.022 (0.014)	−0.021 (0.015)	−0.022 (0.015)	−0.020 (0.015)	−0.018 (0.014)
MAQI - Fiscal and Economic Performances	0.044*** (0.014)	0.014 (0.015)	0.018 (0.015)	0.018 (0.016)	0.013 (0.016)
MAQI - Quality of Local Bureaucracy	−0.039*** (0.009)	−0.027*** (0.010)	−0.027*** (0.010)	−0.023** (0.011)	−0.028*** (0.010)
MAQI - Local Politician Quality	0.025*** (0.005)	0.017*** (0.005)	0.019*** (0.005)	0.023*** (0.005)	0.018*** (0.005)
Total Pop. in LLS (log)	0.099* (0.054)	0.180*** (0.061)	0.260*** (0.069)	0.270*** (0.071)	0.295*** (0.071)
Distance to closest High. Pop. FUA	−0.002 (0.002)	−0.003 (0.002)	−0.003 (0.002)	−0.003 (0.002)	−0.003* (0.002)
Employment-Population Ratio	−2.470** (1.045)	−1.956* (1.119)	−0.940 (1.197)	0.107 (1.278)	−0.250 (1.209)
Employment Rate	0.073*** (0.024)	0.037 (0.031)	0.027 (0.035)	0.028 (0.037)	0.007 (0.035)
Active-Inactive Ratio	−2.432*** (0.491)	−1.999*** (0.572)	−1.942*** (0.617)	−2.477*** (0.651)	−1.394** (0.636)
Wages per wage-earner	−0.001*** (0.0001)	−0.0004*** (0.0001)	−0.0003*** (0.0001)	−0.0004*** (0.0001)	−0.0003*** (0.0001)
Income per capita	0.001*** (0.0001)	0.0003*** (0.0001)	0.0003** (0.0001)	0.0003** (0.0001)	0.0002** (0.0001)
Provincial Capital	−0.281** (0.130)	−0.191 (0.133)	−0.218 (0.135)	−0.106 (0.131)	−0.189 (0.137)
Logistics employment (IHS)	0.463*** (0.033)	0.463*** (0.033)	0.470*** (0.034)		0.482*** (0.035)
Warehousing employment (IHS)				0.378*** (0.027)	
Percent of Land Used					−0.008** (0.004)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,403	98,403	98,403	77,880	67,523
Log Likelihood	−807.508	−775.124	−762.833	−707.201	−741.028
Akaike Inf. Crit.	1,687.016	1,646.249	1,635.667	1,524.403	1,586.056

Note:

*p<0.1; **p<0.05; ***p<0.01
 Year and Region fixed effects included but not reported
 Socio-Demographic classification included but not reported

Table B11: *Probit Regression Results, Individual Development Trap Components Acceleration Rates, Municipal-Year Level*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.007* (0.003)	−0.006 (0.004)	−0.005 (0.004)	−0.003 (0.004)	−0.003 (0.004)
Motorway Accessibility	0.012*** (0.002)	0.012*** (0.002)	0.013*** (0.002)	0.011*** (0.002)	0.013*** (0.002)
Airports Accessibility	−0.006 (0.004)	−0.006 (0.004)	−0.008* (0.004)	−0.008* (0.005)	−0.007* (0.004)
Ports Accessibility	−0.012 (0.010)	−0.012 (0.011)	−0.015 (0.012)	−0.013 (0.012)	−0.014 (0.011)
MAQI - Fiscal and Economic Performances	0.029** (0.014)	0.008 (0.015)	0.011 (0.016)	0.011 (0.016)	0.007 (0.016)
MAQI - Quality of Local Bureaucracy	−0.034*** (0.009)	−0.028*** (0.010)	−0.028*** (0.010)	−0.022** (0.011)	−0.027*** (0.010)
MAQI - Local Politician Quality	0.017*** (0.005)	0.015*** (0.005)	0.017*** (0.005)	0.022*** (0.005)	0.017*** (0.005)
Total Pop. in LLS (log)	0.091** (0.037)	0.095** (0.039)	0.128*** (0.049)	0.147*** (0.052)	0.151*** (0.050)
Distance to closest High. Pop. FUA	−0.003* (0.002)	−0.003* (0.002)	−0.003* (0.002)	−0.003 (0.002)	−0.004* (0.002)
Employment-Population Ratio (<i>Acceleration Rate</i>)	3.107 (2.252)	6.596** (2.658)	5.454** (2.702)	4.852 (3.011)	4.545 (2.814)
Employment Rate (<i>Acceleration Rate</i>)	−2.403 (6.585)	10.197 (9.943)	11.429 (10.325)	22.763** (11.003)	12.129 (10.424)
Active-Inactive Ratio (<i>Acceleration Rate</i>)	−7.020*** (2.398)	6.090* (3.271)	6.294* (3.348)	7.326** (3.560)	6.908** (3.391)
Wages per wage-earner (<i>Acceleration Rate</i>)	11.061** (5.331)	20.875** (8.955)	18.090** (9.145)	21.262** (9.742)	12.007 (10.032)
Income per capita (<i>Acceleration Rate</i>)	10.696*** (3.700)	−4.259 (11.800)	−4.703 (11.688)	−5.051 (12.576)	2.737 (13.568)
Provincial Capital	−0.062 (0.128)	−0.040 (0.131)	−0.090 (0.132)	−0.006 (0.129)	−0.088 (0.133)
Logistics employment (IHS)	0.460*** (0.033)	0.455*** (0.034)	0.463*** (0.034)		0.473*** (0.034)
Warehousing employment (IHS)				0.374*** (0.027)	
Percent of Land Used					−0.007* (0.004)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	67,421	67,421	67,421	46,953	59,701
Log Likelihood	−773.284	−745.498	−736.863	−683.895	−728.717
Akaike Inf. Crit.	1,618.569	1,578.996	1,575.726	1,469.791	1,559.434

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

Table B12: *Probit Regression Results, Individual Development Trap Components Deviations from National Trends, Municipal-Year Level*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.007** (0.003)	−0.007** (0.003)	−0.006* (0.004)	−0.004 (0.004)	−0.004 (0.004)
Motorway Accessibility	0.012*** (0.002)	0.013*** (0.002)	0.014*** (0.002)	0.011*** (0.002)	0.013*** (0.002)
Airports Accessibility	−0.007* (0.004)	−0.007 (0.004)	−0.008* (0.004)	−0.008* (0.004)	−0.007* (0.004)
Ports Accessibility	−0.014 (0.010)	−0.008 (0.010)	−0.010 (0.012)	−0.009 (0.012)	−0.011 (0.011)
MAQI - Fiscal and Economic Performances	0.066*** (0.012)	0.007 (0.015)	0.010 (0.015)	0.011 (0.016)	0.007 (0.016)
MAQI - Quality of Local Bureaucracy	−0.044*** (0.008)	−0.026*** (0.010)	−0.025*** (0.010)	−0.020* (0.011)	−0.027*** (0.010)
MAQI - Local Politician Quality	0.027*** (0.004)	0.017*** (0.005)	0.018*** (0.005)	0.023*** (0.005)	0.018*** (0.005)
Total Pop. in LLS (log)	0.106*** (0.035)	0.119*** (0.039)	0.157*** (0.049)	0.178*** (0.052)	0.188*** (0.051)
Distance to closest High. Pop. FUA	−0.002 (0.002)	−0.003 (0.002)	−0.003 (0.002)	−0.002 (0.002)	−0.003 (0.002)
Employment-Population Ratio (Deviation from national trend)	10.447*** (2.122)	12.454*** (2.217)	11.151*** (2.385)	12.068*** (2.487)	11.124*** (2.540)
Employment Rate (Deviation from national trend)	−29.915*** (10.371)	41.755** (16.677)	43.882** (17.157)	53.944*** (18.332)	41.017** (17.446)
Active-Inactive Ratio (Deviation from national trend)	2.977 (3.408)	7.327* (4.220)	6.086 (4.509)	5.810 (4.823)	10.486** (4.696)
Wages per wage-earner (Deviation from national trend)	−10.360 (8.817)	−2.692 (15.107)	5.300 (15.517)	2.070 (16.607)	15.503 (16.399)
Income per capita (Deviation from national trend)	11.609** (4.736)	11.664 (18.512)	5.427 (18.759)	5.446 (19.936)	−5.908 (20.226)
Provincial Capital	−0.087 (0.123)	−0.045 (0.131)	−0.102 (0.132)	−0.015 (0.128)	−0.070 (0.134)
Logistics employment (IHS)	0.444*** (0.031)	0.455*** (0.033)	0.464*** (0.033)		0.474*** (0.034)
Warehousing employment (IHS)				0.376*** (0.027)	
Percent of Land Used					−0.007* (0.004)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,295	98,295	98,295	77,772	67,415
Log Likelihood	−853.525	−771.527	−762.150	−707.674	−738.405
Akaike Inf. Crit.	1,779.050	1,639.055	1,634.300	1,525.348	1,580.810

Note:

*p<0.1; **p<0.05; ***p<0.01
Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

B.5 Monte-Carlo-like Placebo Randomisation Test

B.5.1 Proposed Test Details

This section describes the proposed Monte-Carlo like Placebo randomisation test, consisting in a two-step procedure. First, it assigns randomly to municipalities the treatment value 1 or 0, while preserving the treatment structure (number of treated municipalities, staggered openings and precise years of opening). It then estimates the regressions described in (2). After B total repetitions, average results are presented. Formally, with :

$\hat{\theta}_b$ = coefficient estimate of placebo draw b , $\hat{\sigma}_b$ = its standard errors, $\hat{p}_b$ = its p-value, average values are reported :

$$\hat{\theta} = \frac{1}{B} \sum_{b=1}^B \hat{\theta}_b; \quad \hat{\sigma} = \frac{1}{B} \sum_{b=1}^B \hat{\sigma}_b; \quad \hat{p} = \frac{1}{B} \sum_{b=1}^B \hat{p}_b$$

The optimisation problem is to determine a B that allows to estimate the different values with a low enough Monte-Carlo Standard Error (MCSE) - an estimate of the Monte Carlo samples inaccuracy, i.e., between-simulation variability (Gelman et al., 1995; Koehler et al., 2009). For any quantity Z_b (coefficient, standard error...), the MCSE of its average is approximately equal to:

$$MCSE(\bar{Z}) = \frac{sd(Z_b)}{\sqrt{B}}$$

Results are reported for $B = 500$, a value that allows in the case of this analysis to generally estimate $MCSE(\bar{Z}) < 0.1$, a reasonable threshold for this exercise, without imposing an important computational burden. Average estimates are found in Table B13, and MCSE values in Table B14.

B.5.2 Results

Table B13: *Monte-Carlo Placebo randomisation test ($B = 500$), Within-Region Average Probit Regression Results, Municipality-Year*

	<i>Randomly assigned Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.003 (0.007)	−0.005 (0.008)	−0.004 (0.008)	−0.005 (0.009)	−0.005 (0.008)
Motorway Accessibility	0.0004 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.002)	0.001 (0.001)
Airports Accessibility	−0.002 (0.006)	−0.003 (0.006)	−0.003 (0.006)	−0.003 (0.008)	−0.003 (0.007)
Ports Accessibility	−0.022 (0.014)	−0.022 (0.014)	−0.025 (0.016)	−0.037 (0.025)	−0.025 (0.017)
MAQI - Fiscal and Economic Performances	0.030*** (0.006)	−0.001 (0.007)	−0.001 (0.007)	0.001 (0.012)	−0.001 (0.008)
MAQI - Quality of Local Bureaucracy	−0.012 (0.005)	0.0004 (0.005)	0.0005 (0.005)	0.002 (0.009)	0.0004 (0.005)
MAQI - Local Politician Quality	0.007 (0.003)	0.0001 (0.003)	0.0001 (0.003)	0.0001 (0.004)	−0.00005 (0.003)
Total Pop. in LLS (log)	−0.010 (0.025)	0.003 (0.027)	0.007 (0.033)	0.009 (0.046)	0.006 (0.033)
Distance to closest High. Pop. FUA	−0.0004 (0.001)	−0.0003 (0.001)	−0.0003 (0.001)	−0.001 (0.002)	−0.0003 (0.001)
LLS In Development Trap	0.138 (0.082)	−0.014 (0.089)	−0.015 (0.094)	−0.049 (1.505)	−0.015 (0.095)
Provincial Capital	−1.435 (50.509)	−1.525 (67.291)	−1.556 (73.804)	−1.659 (128.246)	−1.514 (59.134)
Logistics employment (IHS)	−0.005 (0.017)	−0.002 (0.018)	−0.003 (0.018)		−0.004 (0.019)
Warehousing employment (IHS)				−0.007 (0.024)	
Percent of Land Used					0.001 (0.004)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
Socio-demographic controls	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631

Note:

*p<0.1; **p<0.05; ***p<0.01
Monte-Carlo Placebo randomisation test ($B = 500$)
Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

Table B14: *Monte-Carlo Placebo randomisation test ($B = 500$), Monte Carlo Standard Errors for randomised statistics*

	<i>Randomly assigned Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	0.001 (0.0001)	0.001 (0.0001)	0.001 (0.0001)	0.001 (0.0001)	0.001 (0.0001)
Motorway Accessibility	0.0001 (0.00000)	0.0001 (0.00000)	0.0002 (0.00000)	0.0002 (0.00001)	0.0001 (0.00000)
Airports Accessibility	0.001 (0.0001)	0.001 (0.0001)	0.001 (0.0001)	0.001 (0.0001)	0.001 (0.0001)
Ports Accessibility	0.002 (0.001)	0.003 (0.001)	0.003 (0.001)	0.005 (0.001)	0.003 (0.001)
MAQI - Fiscal and Economic Performances	0.0004 (0.00002)	0.0005 (0.00002)	0.0005 (0.00002)	0.001 (0.00004)	0.0005 (0.00002)
MAQI - Quality of Local Bureaucracy	0.0004 (0.00002)	0.0004 (0.00002)	0.0004 (0.00002)	0.001 (0.0001)	0.0004 (0.00002)
MAQI - Local Politician Quality	0.0002 (0.00000)	0.0003 (0.00000)	0.0003 (0.00000)	0.0004 (0.00001)	0.0003 (0.00000)
Total Pop. in LLS (log)	0.002 (0.00005)	0.002 (0.00005)	0.003 (0.0001)	0.004 (0.0002)	0.003 (0.0001)
Distance to closest High. Pop. FUA	0.0001 (0.00000)	0.0001 (0.00000)	0.0001 (0.00000)	0.0002 (0.00001)	0.0001 (0.00000)
LLS In Development Trap	0.008 (0.0004)	0.009 (0.0005)	0.010 (0.001)	0.020 (0.786)	0.010 (0.001)
Provincial Capital	0.080 (2.805)	0.085 (3.559)	0.086 (3.887)	0.093 (6.790)	0.085 (3.190)
Logistics employment (IHS)	0.002 (0.00002)	0.002 (0.00002)	0.002 (0.00002)		0.002 (0.00002)
Warehousing employment (IHS)				0.002 (0.0001)	
Percent of Land Used					0.0004 (0.00003)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
Socio-demographic controls	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631

Note:

Monte-Carlo Placebo randomisation test ($B = 500$).
Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

B.6 Estimations with Different Binary, Count and Rare-event Models

B.6.1 Logit Model

Table B15: *Within-Region Logit Regression Results, Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.022*** (0.007)	−0.023*** (0.008)	−0.022*** (0.008)	−0.015** (0.008)	−0.016* (0.008)
Motorway Accessibility	0.033*** (0.005)	0.032*** (0.005)	0.032*** (0.005)	0.026*** (0.005)	0.033*** (0.005)
Airports Accessibility	−0.027*** (0.009)	−0.023*** (0.009)	−0.024*** (0.009)	−0.020** (0.009)	−0.024*** (0.009)
Ports Accessibility	−0.031 (0.025)	−0.030 (0.025)	−0.036 (0.027)	−0.033 (0.028)	−0.031 (0.026)
MAQI - Fiscal and Economic Performances	0.164*** (0.031)	0.011 (0.037)	0.016 (0.037)	0.023 (0.037)	0.004 (0.037)
MAQI - Quality of Local Bureaucracy	−0.100*** (0.019)	−0.050** (0.024)	−0.046* (0.024)	−0.025 (0.026)	−0.048** (0.024)
MAQI - Local Politician Quality	0.067*** (0.011)	0.041*** (0.012)	0.043*** (0.012)	0.049*** (0.012)	0.042*** (0.012)
Total Pop. in LLS (log)	0.228*** (0.085)	0.235*** (0.086)	0.392*** (0.118)	0.389*** (0.120)	0.483*** (0.123)
Distance to closest High. Pop. FUA	−0.005 (0.004)	−0.006 (0.004)	−0.007 (0.005)	−0.008* (0.005)	−0.008 (0.005)
LLS In Development Trap	1.226*** (0.355)	0.978*** (0.373)	1.215*** (0.386)	1.082*** (0.391)	1.227*** (0.392)
Provincial Capital	−0.649** (0.290)	−0.526* (0.290)	−0.578** (0.290)	−0.217 (0.275)	−0.523* (0.292)
Logistics employment (IHS)	1.215*** (0.077)	1.204*** (0.078)	1.210*** (0.078)		1.241*** (0.080)
Warehousing employment (IHS)				0.939*** (0.062)	
Percent of Land Used					−0.021** (0.009)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631
Log Likelihood	−865.233	−774.072	−762.591	−711.032	−737.228
Akaike Inf. Crit.	1,794.467	1,636.144	1,627.182	1,524.065	1,570.456

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

B.6.2 Quasi Poisson Model

Table B16: *Within-Region Quasi Poisson Regression Results, Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.016 (0.011)	−0.018 (0.011)	−0.017* (0.009)	−0.012* (0.007)	−0.011 (0.012)
Motorway Accessibility	0.032*** (0.007)	0.030*** (0.008)	0.030*** (0.006)	0.024*** (0.005)	0.030*** (0.008)
Airports Accessibility	−0.034** (0.016)	−0.028* (0.016)	−0.028** (0.013)	−0.023*** (0.009)	−0.029* (0.016)
Ports Accessibility	−0.020 (0.035)	−0.017 (0.036)	−0.022 (0.030)	−0.022 (0.024)	−0.018 (0.036)
MAQI - Fiscal and Economic Performances	0.149*** (0.047)	0.010 (0.059)	0.013 (0.045)	0.020 (0.033)	0.002 (0.058)
MAQI - Quality of Local Bureaucracy	−0.094*** (0.026)	−0.053 (0.036)	−0.049* (0.028)	−0.028 (0.022)	−0.051 (0.035)
MAQI - Local Politician Quality	0.052*** (0.015)	0.034* (0.017)	0.035** (0.014)	0.040*** (0.010)	0.034** (0.017)
Total Pop. in LLS (log)	0.217* (0.130)	0.223 (0.136)	0.377*** (0.144)	0.358*** (0.107)	0.452** (0.191)
Distance to closest High. Pop. FUA	−0.004 (0.006)	−0.004 (0.007)	−0.005 (0.006)	−0.006 (0.004)	−0.005 (0.007)
LLS In Development Trap	1.452*** (0.542)	1.206** (0.590)	1.422*** (0.470)	1.150*** (0.343)	1.462** (0.607)
Provincial Capital	−0.820* (0.448)	−0.713 (0.460)	−0.757** (0.353)	−0.349 (0.241)	−0.732 (0.450)
Logistics employment (IHS)	1.129*** (0.114)	1.078*** (0.117)	1.078*** (0.089)		1.095*** (0.116)
Warehousing employment (IHS)				0.837*** (0.052)	
Percent of Land Used					−0.016 (0.013)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
LLS Socio-Demographic Classification	No	No	Yes	Yes	Yes
Observations	98,511	98,511	98,511	77,988	67,631

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

B.6.3 Firth Penalized Logistic Regression (Firth, 1993)Table B17: *Within-Region Firth Penalized Logistic Regression Results, Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	−0.021*** (0.007)	−0.022*** (0.007)	−0.021*** (0.007)	−0.014** (0.007)	−0.014* (0.008)
Motorway Accessibility	0.033*** (0.005)	0.032*** (0.005)	0.032*** (0.005)	0.026*** (0.005)	0.032*** (0.005)
Airports Accessibility	−0.026*** (0.009)	−0.023*** (0.008)	−0.023*** (0.008)	−0.019** (0.009)	−0.024*** (0.008)
Ports Accessibility	−0.019 (0.017)	−0.018 (0.016)	−0.023 (0.017)	−0.018 (0.017)	−0.019 (0.016)
MAQI - Fiscal and Economic Performances	0.163*** (0.029)	0.009 (0.034)	0.015 (0.034)	0.021 (0.034)	0.002 (0.034)
MAQI - Quality of Local Bureaucracy	−0.101*** (0.018)	−0.052** (0.023)	−0.047* (0.023)	−0.027 (0.024)	−0.049* (0.023)
MAQI - Local Politician Quality	0.066*** (0.011)	0.040*** (0.011)	0.042*** (0.011)	0.048*** (0.011)	0.042*** (0.011)
Total Pop. in LLS (log)	0.219*** (0.081)	0.226*** (0.081)	0.372*** (0.109)	0.369*** (0.111)	0.466*** (0.115)
Distance to closest High. Pop. FUA	−0.005 (0.004)	−0.005 (0.004)	−0.007 (0.004)	−0.008* (0.004)	−0.007 (0.004)
LLS In Development Trap	1.207*** (0.329)	0.962** (0.342)	1.197*** (0.348)	1.059*** (0.349)	1.208*** (0.354)
Provincial Capital	−0.642** (0.277)	−0.526* (0.272)	−0.578** (0.270)	−0.221 (0.255)	−0.523* (0.272)
Logistics employment (IHS)	1.202*** (0.074)	1.186*** (0.073)	1.188*** (0.072)		1.220*** (0.075)
Warehousing employment (IHS)				0.918*** (0.058)	
Percent of Land Used					−0.021** (0.008)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
Socio-demographic controls	No	No	Yes	Yes	Yes
Likelihood Ratio test χ^2	1155.7***	1321.2***	1336.6***	1322***	1210***
Observations	98,511	98,511	98,511	77,988	67,631
Log Likelihood	−865.233	−774.072	−762.591	−711.032	−737.228
Akaike Inf. Crit.	1,794.467	1,636.144	1,627.182	1,524.065	1,570.456

Note:

*p<0.1; **p<0.05; ***p<0.01

Firth penalized likelihood estimation.

Standard errors from penalized Hessian.

Year and Region fixed effects included but not reported

Socio-Demographic classification included but not reported

B.6.4 Discrete-Time Hazard Model (Allison, 1982)Table B18: *Within-Region Discrete-Time Hazard Model Probit Regression Results, Municipality-Year*

	<i>Dependent variable: Amazon Centre Year of Opening</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	-0.0025 (0.0048)	-0.0023 (0.0051)	-0.0018 (0.0052)	0.0002 (0.0051)	-0.0009 (0.0056)
Motorway Accessibility	0.0091*** (0.0030)	0.0093*** (0.0031)	0.0092*** (0.0031)	0.0071** (0.0032)	0.0088*** (0.0032)
Airports Accessibility	$3.64e10^{-5}$ (0.0056)	0.0003 (0.0057)	0.0007 (0.0059)	0.0019 (0.0059)	0.0009 (0.0059)
Ports Accessibility	-0.0057 (0.0118)	-0.0056 (0.0122)	-0.0073 (0.0138)	-0.0063 (0.0139)	-0.0075 (0.0139)
MAQI - Fiscal and Economic Performances	0.0673*** (0.0192)	0.0312 (0.0224)	0.0317 (0.0226)	0.0331 (0.0230)	0.0318 (0.0232)
MAQI - Quality of Local Bureaucracy	-0.0371*** (0.0114)	-0.0268** (0.0132)	-0.0274** (0.0132)	-0.0263* (0.0137)	-0.0288** (0.0131)
MAQI - Local Politician Quality	0.0196*** (0.0067)	0.0123* (0.0073)	0.0131* (0.0074)	0.0151** (0.0074)	0.0120 (0.0075)
Total Pop. in LLS (log)	0.0546 (0.0541)	0.0505 (0.0557)	0.0714 (0.0715)	0.0783 (0.0736)	0.0868 (0.0753)
Distance to closest High. Pop. FUA	-0.0028 (0.0026)	-0.0030 (0.0027)	-0.0026 (0.0029)	-0.0026 (0.0029)	-0.0025 (0.0029)
LLS In Development Trap	0.5051** (0.2046)	0.4106* (0.2136)	0.4346* (0.2234)	0.4062* (0.2213)	0.4178* (0.2271)
Provincial Capital	0.1825 (0.1860)	0.1997 (0.1925)	0.1788 (0.1945)	0.2910 (0.1849)	0.2159 (0.1980)
Logistics employment (IHS)	0.2773*** (0.0443)	0.2794*** (0.0455)	0.2819*** (0.0458)		0.2795*** (0.0475)
Warehousing employment (IHS)				0.1951*** (0.0337)	
Percent of Land Used					-0.0012 (0.0056)
Year FE	No	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
Socio-demographic controls	No	No	Yes	Yes	Yes
Observations	88,972	61,064	61,064	43,058	54,087
Pseudo R ²	0.30154	0.31020	0.31375	0.29825	0.31166
BIC	963.58	1,004.6	1,067.6	1,039.6	1,045.7

Note:

*p<0.1; **p<0.05; ***p<0.01
 Year and Region fixed effects included but not reported
 Socio-Demographic classification included but not reported

B.7 Logistics Location Behaviour, Lagged Variables

Table B19: *Within-Region 1-year Lagged Variables, Probit Regression Results, Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	-0.006** (0.003)	-0.006** (0.003)	-0.006* (0.003)	-0.003 (0.003)	-0.004 (0.003)
Motorway Accessibility	0.012*** (0.002)	0.013*** (0.002)	0.013*** (0.002)	0.010*** (0.002)	0.013*** (0.002)
Airports Accessibility	-0.005 (0.003)	-0.005 (0.004)	-0.006 (0.004)	-0.005 (0.004)	-0.005 (0.004)
Ports Accessibility	-0.010 (0.008)	-0.010 (0.008)	-0.012 (0.009)	-0.010 (0.009)	-0.011 (0.009)
MAQI - Fiscal and Economic Performances $t-1$	0.066*** (0.011)	0.009 (0.013)	0.011 (0.013)	0.012 (0.013)	0.007 (0.013)
MAQI - Quality of Local Bureaucracy $t-1$	-0.043*** (0.007)	-0.025*** (0.009)	-0.024*** (0.009)	-0.020** (0.009)	-0.024*** (0.009)
MAQI - Local Politician Quality $t-1$	0.025*** (0.004)	0.015*** (0.004)	0.016*** (0.004)	0.019*** (0.004)	0.015*** (0.004)
LLS In Development Trap $t-1$	0.542*** (0.126)	0.431*** (0.134)	0.499*** (0.137)	0.482*** (0.138)	0.487*** (0.138)
Total Pop. in LLS $t-1$ (log)	0.080*** (0.031)	0.074** (0.032)	0.116*** (0.038)	0.136*** (0.040)	0.137*** (0.040)
Distance to closest High. Pop. FUA	-0.003** (0.002)	-0.003** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)
Provincial Capital	7.23e ⁻⁶ (0.109)	0.026 (0.114)	-0.010 (0.115)	0.122 (0.111)	0.016 (0.116)
Logistics employment $t-1$ (IHS)	0.423*** (0.028)	0.426*** (0.028)	0.436*** (0.029)		0.443*** (0.030)
Warehousing employment $t-1$ (IHS)				0.328*** (0.022)	
Percent of Land Used					-0.005 (0.003)
Year FE	No	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes
Socio-demographic controls	No	No	Yes	Yes	Yes
Observations	88,972	88,972	88,972	70,966	68,041
Pseudo R ²	0.39031	0.43525	0.44227	0.45002	0.42789
BIC	2,471.5	2,449.6	2,493.2	2,366.4	2,410.9

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

Table B20: *Within-Region 2-year Lagged Variables, Probit Regression Results, Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	-0.005 (0.003)	-0.005 (0.003)	-0.005 (0.003)	-0.001 (0.003)	-0.003 (0.003)
Motorway Accessibility	0.012*** (0.002)	0.013*** (0.002)	0.013*** (0.002)	0.010*** (0.002)	0.013*** (0.002)
Airports Accessibility	-0.004 (0.003)	-0.004 (0.004)	-0.005 (0.004)	-0.003 (0.004)	-0.004 (0.004)
Ports Accessibility	-0.009 (0.008)	-0.009 (0.008)	-0.011 (0.009)	-0.009 (0.009)	-0.011 (0.009)
MAQI - Fiscal and Economic Performances $t-2$	0.059*** (0.011)	0.006 (0.012)	0.007 (0.012)	0.008 (0.012)	0.006 (0.012)
MAQI - Quality of Local Bureaucracy $t-2$	-0.044*** (0.007)	-0.028*** (0.008)	-0.027*** (0.008)	-0.022** (0.009)	-0.028*** (0.008)
MAQI - Local Politician Quality $t-2$	0.021*** (0.004)	0.010** (0.004)	0.010** (0.004)	0.013*** (0.004)	0.010** (0.004)
LLS In Development Trap $t-2$	0.574*** (0.124)	0.442*** (0.131)	0.503*** (0.134)	0.481*** (0.134)	0.495*** (0.135)
Total Pop. in LLS $t-2$ (log)	0.081*** (0.030)	0.076** (0.031)	0.115*** (0.038)	0.137*** (0.040)	0.129*** (0.039)
Distance to closest High. Pop. FUA	-0.003** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.005** (0.002)
Provincial Capital	0.115 (0.109)	0.140 (0.114)	0.104 (0.114)	0.264** (0.110)	0.123 (0.116)
Logistics employment $t-2$ (IHS)	0.381*** (0.026)	0.389*** (0.027)	0.398*** (0.028)		0.403*** (0.028)
Warehousing employment $t-2$ (IHS)				0.274*** (0.020)	
Percent of Land Used					-0.003 (0.003)
Year FE	No	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes
Socio-demographic controls	No	No	Yes	Yes	Yes
Observations	82,346	82,346	82,346	67,892	68,392
Pseudo R ²	0.37606	0.41636	0.42274	0.42451	0.41220
BIC	2,487.5	2,471.8	2,517.5	2,406.9	2,465.3

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported

Socio-Demographic classification included but not reported

Table B21: *Within-Region 3-year Lagged Variables, Probit Regression Results, Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	-0.003 (0.003)	-0.003 (0.003)	-0.003 (0.003)	0.001 (0.003)	-0.002 (0.003)
Motorway Accessibility	0.012*** (0.002)	0.013*** (0.002)	0.013*** (0.002)	0.011*** (0.002)	0.013*** (0.002)
Airports Accessibility	-0.003 (0.003)	-0.003 (0.004)	-0.003 (0.004)	-0.001 (0.004)	-0.003 (0.004)
Ports Accessibility	-0.008 (0.008)	-0.009 (0.008)	-0.010 (0.009)	-0.009 (0.008)	-0.010 (0.009)
MAQI - Fiscal and Economic Performances $t-3$	0.048*** (0.010)	0.003 (0.011)	0.004 (0.011)	0.006 (0.011)	0.003 (0.011)
MAQI - Quality of Local Bureaucracy $t-3$	-0.042*** (0.007)	-0.028*** (0.008)	-0.028*** (0.008)	-0.022** (0.009)	-0.028*** (0.008)
MAQI - Local Politician Quality $t-3$	0.018*** (0.004)	0.006 (0.004)	0.007* (0.004)	0.010** (0.004)	0.006 (0.004)
LLS In Development Trap $t-3$	0.607*** (0.123)	0.462*** (0.129)	0.516*** (0.132)	0.487*** (0.131)	0.508*** (0.133)
Total Pop. in LLS $t-3$ (log)	0.082*** (0.030)	0.080** (0.031)	0.116*** (0.037)	0.140*** (0.039)	0.127*** (0.038)
Distance to closest High. Pop. FUA	-0.004** (0.002)	-0.004** (0.002)	-0.005*** (0.002)	-0.005** (0.002)	-0.005*** (0.002)
Provincial Capital	0.229** (0.110)	0.255** (0.114)	0.220* (0.114)	0.394*** (0.110)	0.243** (0.116)
Logistics employment $t-3$ (IHS)	0.336*** (0.025)	0.348*** (0.026)	0.357*** (0.027)		0.360*** (0.027)
Warehousing employment $t-3$ (IHS)				0.228*** (0.019)	
Percent of Land Used					-0.002 (0.003)
Year FE	No	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes
Socio-demographic controls	No	No	Yes	Yes	Yes
Observations	75,688	75,688	75,688	64,888	61,734
Pseudo R ²	0.36008	0.39736	0.40332	0.40134	0.39062
BIC	2,505.7	2,490.3	2,537.3	2,443.6	2,483.8

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported

Socio-Demographic classification included but not reported

B.8 Logistics Location Behaviour, Restricted Samples

Table B22: *Within-Province Restricted Sample, Probit Regression Results, Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	-0.012*** (0.004)	-0.012*** (0.004)	-0.013*** (0.005)	-0.010** (0.005)	-0.007 (0.005)
Motorway Accessibility	0.015*** (0.002)	0.015*** (0.002)	0.015*** (0.002)	0.012*** (0.003)	0.015*** (0.003)
Airports Accessibility	-0.016*** (0.006)	-0.016*** (0.006)	-0.016*** (0.006)	-0.015** (0.006)	-0.015*** (0.006)
Ports Accessibility	-0.037** (0.018)	-0.036** (0.018)	-0.045** (0.022)	-0.042* (0.022)	-0.043** (0.021)
MAQI - Fiscal and Economic Performances	0.090*** (0.014)	0.027 (0.017)	0.028 (0.017)	0.024 (0.018)	0.021 (0.018)
MAQI - Quality of Local Bureaucracy	-0.049*** (0.010)	-0.021* (0.012)	-0.022* (0.012)	-0.016 (0.013)	-0.023* (0.012)
MAQI - Local Politician Quality	0.031*** (0.005)	0.020*** (0.006)	0.021*** (0.006)	0.025*** (0.006)	0.020*** (0.006)
LLS In Development Trap	0.777*** (0.199)	0.667*** (0.223)	0.689*** (0.245)	0.667*** (0.255)	0.786*** (0.254)
Total Pop. in LLS (log)	0.122** (0.052)	0.126** (0.055)	0.120* (0.067)	0.123* (0.073)	0.164** (0.069)
Distance to closest High. Pop. FUA	-0.001 (0.005)	-0.001 (0.005)	-0.002 (0.005)	-0.005 (0.005)	-0.004 (0.005)
Provincial Capital	-0.061 (0.154)	0.009 (0.164)	0.018 (0.164)	0.148 (0.161)	0.041 (0.168)
Logistics employment (IHS)	0.514*** (0.037)	0.517*** (0.038)	0.520*** (0.039)		0.541*** (0.040)
Warehousing employment (IHS)				0.406*** (0.031)	
Percent of Land Used					-0.013*** (0.004)
Year FE	No	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes
Socio-demographic controls	No	No	Yes	Yes	Yes
Observations	44,151	40,687	40,687	32,563	30,295
Pseudo R ²	0.41591	0.47082	0.47185	0.48533	0.45815
BIC	2,201.8	2,154.1	2,215.2	2,105.7	2,124.2

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

Table B23: *Within-Province Restricted Sample, Probit Regression Results, Municipality-Year*

	<i>Dependent variable: Amazon Centre Presence</i>				
	(1)	(2)	(3)	(4)	(5)
Railway Accessibility	-0.015*** (0.005)	-0.016*** (0.005)	-0.016*** (0.005)	-0.012** (0.005)	-0.011** (0.005)
Motorway Accessibility	0.018*** (0.003)	0.021*** (0.003)	0.021*** (0.003)	0.017*** (0.004)	0.022*** (0.004)
Airports Accessibility	-0.008 (0.006)	-0.009 (0.006)	-0.009 (0.006)	-0.005 (0.006)	-0.007 (0.006)
Ports Accessibility	-0.039** (0.019)	-0.038** (0.019)	-0.038** (0.019)	-0.030* (0.018)	-0.033* (0.017)
MAQI - Fiscal and Economic Performances	0.089*** (0.015)	0.011 (0.019)	0.011 (0.019)	0.009 (0.019)	0.003 (0.019)
MAQI - Quality of Local Bureaucracy	-0.043*** (0.011)	-0.009 (0.014)	-0.009 (0.014)	-0.003 (0.015)	-0.010 (0.013)
MAQI - Local Politician Quality	0.037*** (0.005)	0.024*** (0.006)	0.024*** (0.006)	0.030*** (0.007)	0.024*** (0.006)
Distance to closest High. Pop. FUA	-0.0009 (0.007)	-0.0004 (0.007)	-0.0004 (0.007)	-0.005 (0.008)	-0.006 (0.008)
Provincial Capital	-0.225 (0.181)	-0.113 (0.195)	-0.113 (0.195)	0.101 (0.187)	-0.023 (0.198)
Logistics employment (IHS)	0.562*** (0.043)	0.572*** (0.046)	0.572*** (0.046)		0.580*** (0.046)
Warehousing employment (IHS)				0.412*** (0.034)	
Percent of Land Used					-0.016*** (0.005)
Year FE	No	Yes	Yes	Yes	Yes
LLS FE	Yes	Yes	Yes	Yes	Yes
Observations	19,064	17,577	17,577	14,764	13,116
Pseudo R ²	0.39473	0.46828	0.46828	0.48052	0.44452
BIC	2,025.4	1,945.1	1,945.1	1,858.6	1,875.4

Note:

*p<0.1; **p<0.05; ***p<0.01

Year and Region fixed effects included but not reported
Socio-Demographic classification included but not reported

B.9 Changes in Local Level Income Group Distributions and Concentrations following an Amazon opening

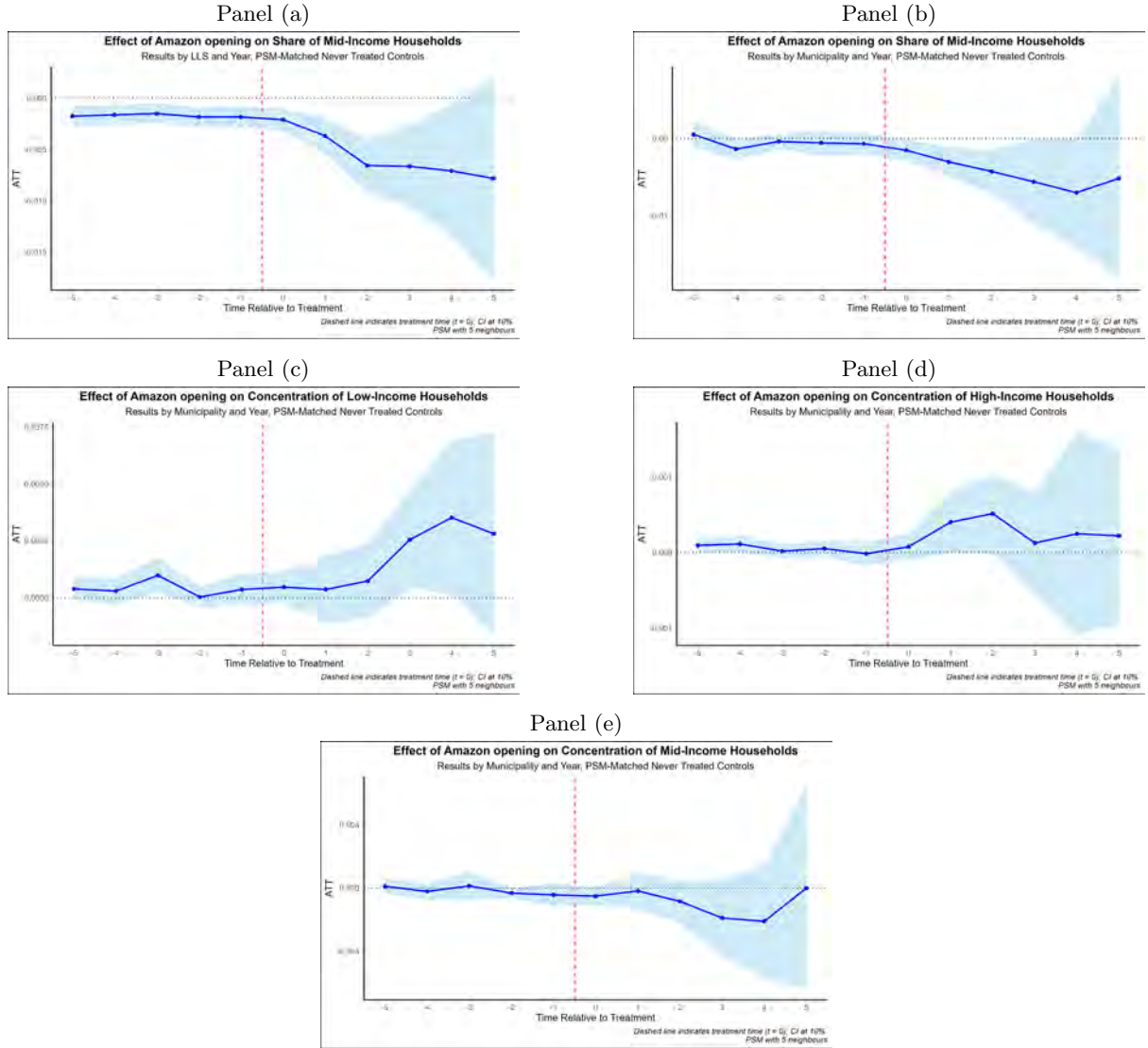


Figure B1: *Dynamic Difference-in-Differences Specifications for Local Level Income Group Distributions and Concentrations*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Share of Middle-Income Households (annual income between 15K and 55K€) with PSM-Matched Never Treated Controls at the Local Labour System-Year level (Panel (a)); the Share of Middle-Income Households (annual income between 15K and 55K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)); the Concentration of Low-Income Households (annual income below 15K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)); the Concentration of High-Income Households (annual income above 55K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (d)); the Concentration of Low-Income Households (annual income between 15K and 55K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (e)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.10 Changes in Air Pollution Rankings

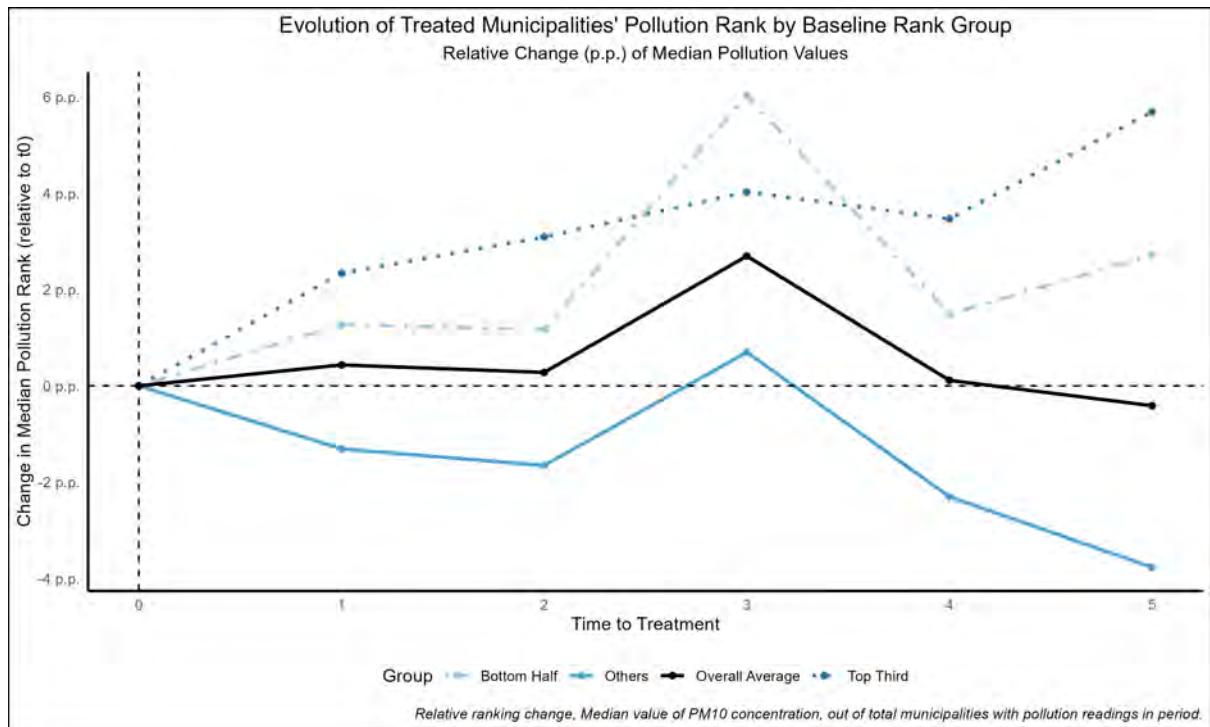


Figure B2: *Evolution of Treated Municipalities' PM₁₀ Pollution Rankings*

B.11 Using Not Yet Treated controls

B.11.1 Income, Welfare & Local Development

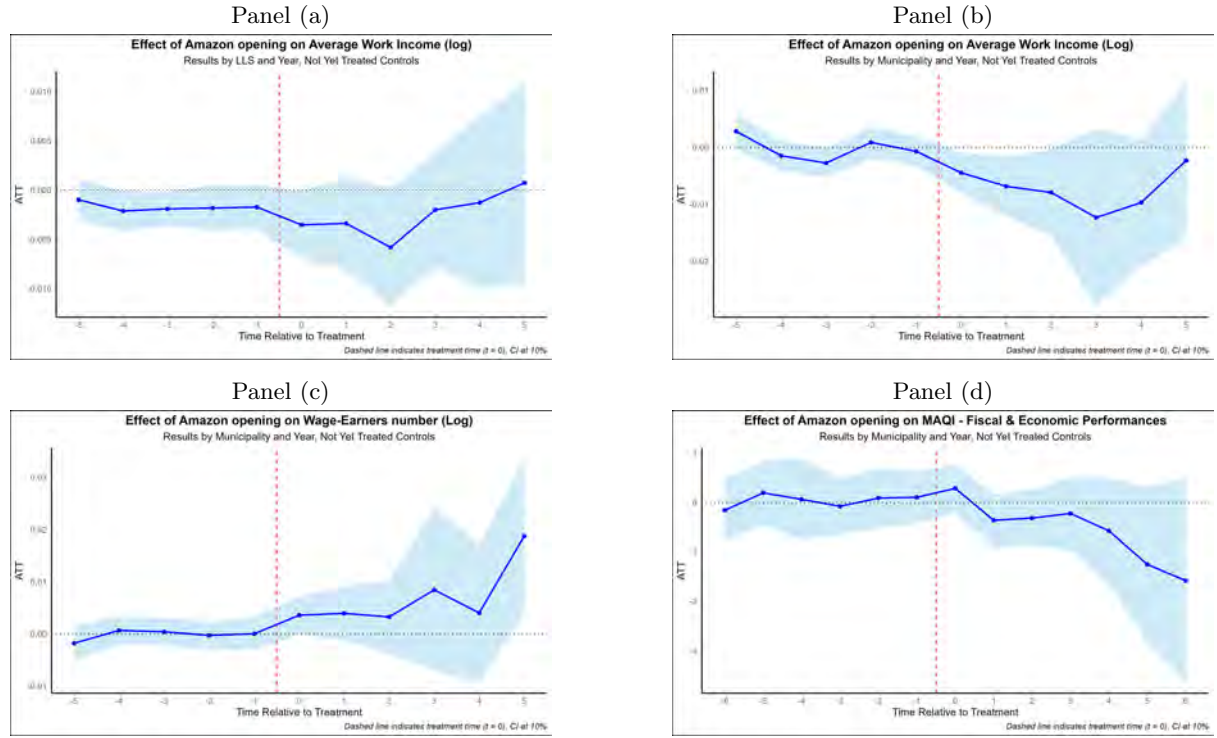


Figure B3: *Dynamic Difference-in-Differences Specification for local welfare indicators with Not-Yet-Treated controls*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Average Work-related Income (log-transformed) with Not-Yet-Treated Controls at the LLS-Year level (Panel (a)); the Average Work-related Income (log-transformed) with Not-Yet-Treated Controls at the Municipality-Year level (Panel (b)); the total number of jobs (log-transformed) with Not-Yet-Treated Controls at the Municipality-Year level (Panel (c)); the Fiscal & Economic Performances as defined in the MAQI (Cerqua et al., 2025) with Not-Yet-Treated Controls at the Municipality-Year level (Panel (d)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.11.2 Local Income Groups Distribution

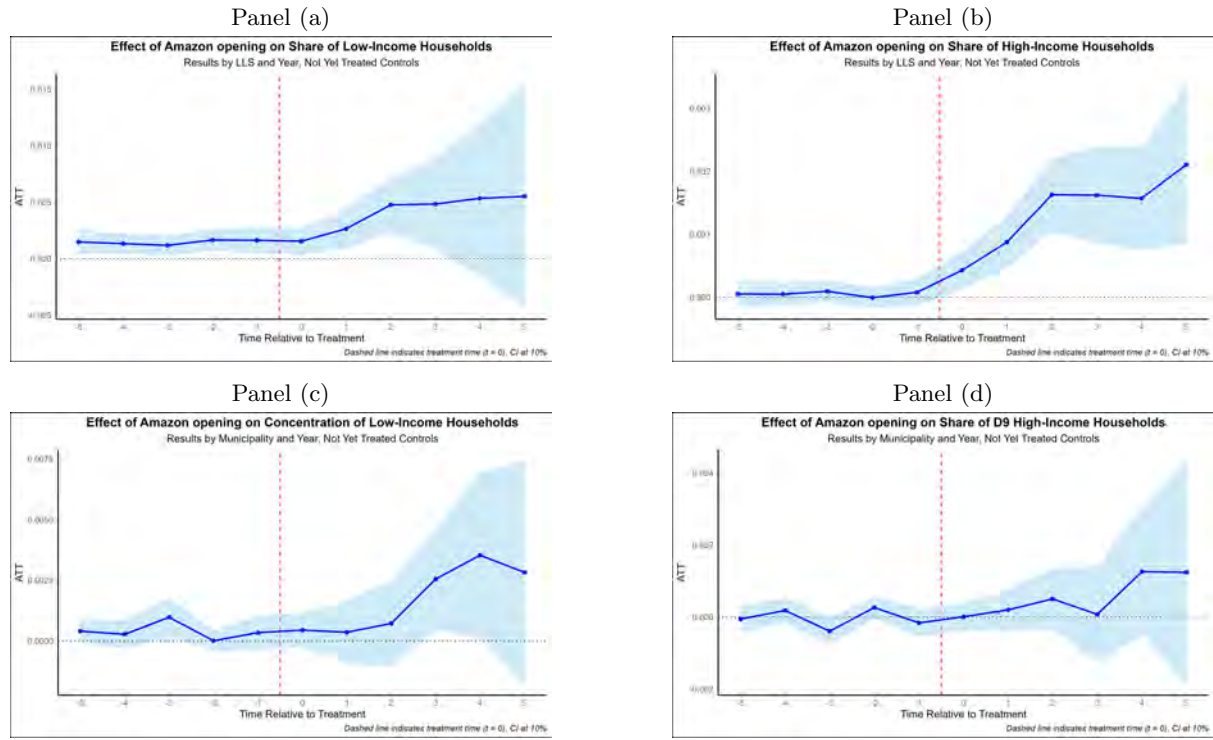


Figure B4: *Dynamic Difference-in-Differences Specification on local income groups distribution with Not-Yet-Treated controls*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Share of Low-Income Households (annual income below 15K€) with Not-Yet-Treated Controls at the Local Labour System-Year level (Panel (a)); the Share of High-Income Households (annual income above 55K€) with Not-Yet-Treated Controls at the Local Labour System-Year level (Panel (b)); the Share of Low-Income Households (annual income below 15K€) with Not-Yet-Treated Controls at the Municipality-Year level (Panel (c)); the Share of High-Income Households (annual income above 55K€) with Not-Yet-Treated Controls at the Municipal-Year level (Panel (d)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.11.3 Air Quality & Local Environment

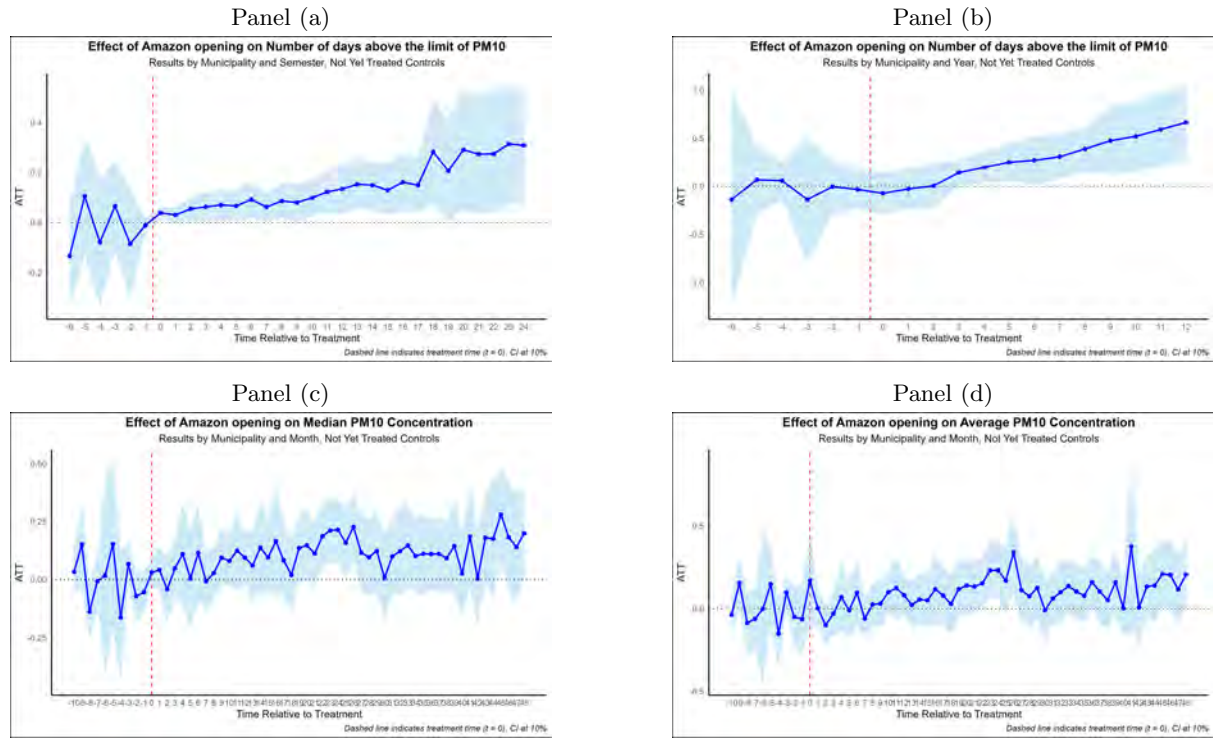


Figure B5: *Dynamic Difference-in-Differences Specifications for Air Quality with Not-Yet-Treated controls*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Number of Days Above the PM₁₀ limit with Not-Yet-Treated Controls at the Municipality-Semester level (Panel (a)); the Number of Days Above the PM₁₀ limit with Not-Yet-Treated Controls at the Municipality-Year level (Panel (b)); the Median concentration of PM₁₀ with Not-Yet-Treated Controls at the Municipality-Month level (Panel (c)); the Average concentration of PM₁₀ with Not-Yet-Treated Controls at the Municipality-Month level (Panel (d)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.12 Accounting for anticipation effects through the Callaway and Sant'Anna (2021) *did* package

B.12.1 1 year of anticipation

Income, Welfare & Local Development

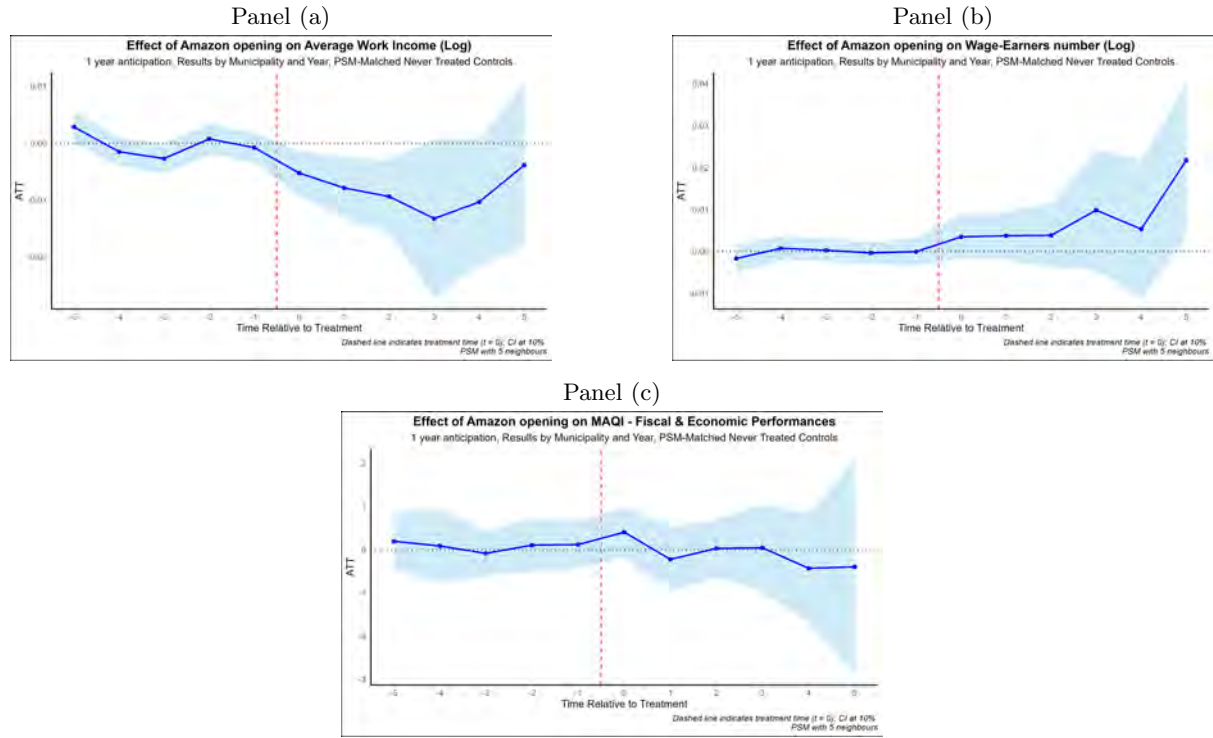


Figure B6: *Dynamic Difference-in-Differences Specification for local welfare indicators with PSM-Matched Never Treated controls, 1 year anticipation*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Average Work-related Income (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (a)); the total number of jobs (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)); the Fiscal & Economic Performances as defined in the MAQI (Cerqua et al., 2025) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Accounts for 1 year of anticipation. Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

Local Income Groups Distribution

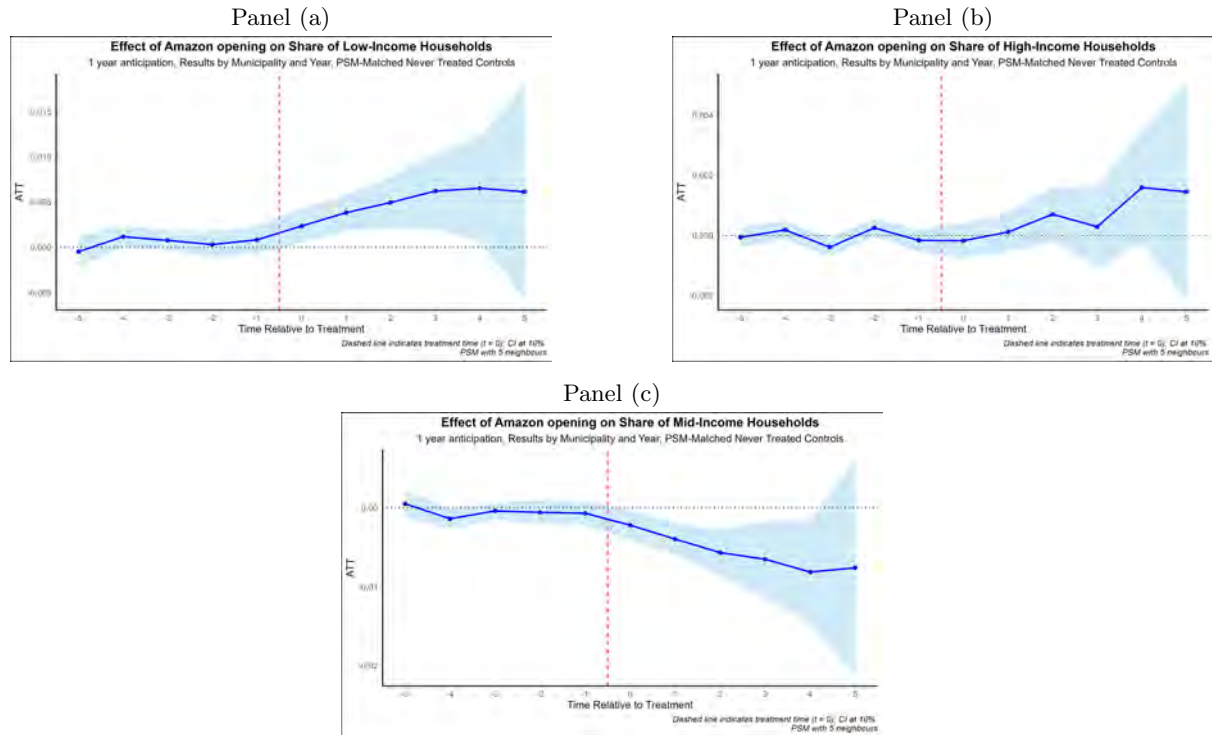


Figure B7: *Dynamic Difference-in-Differences Specification on local income groups distribution with PSM-Matched Never Treated controls, 1 year anticipation*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Share of Low-Income Households (annual income below 15K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (a)); the Share of High-Income Households (annual income above 55K€) with PSM-Matched Never Treated Controls at the Municipal-Year level (Panel (b)); the Share of Middle-Income Households (annual income between 15K and 55K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Accounts for 1 year of anticipation. Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

Air Quality & Local Environment

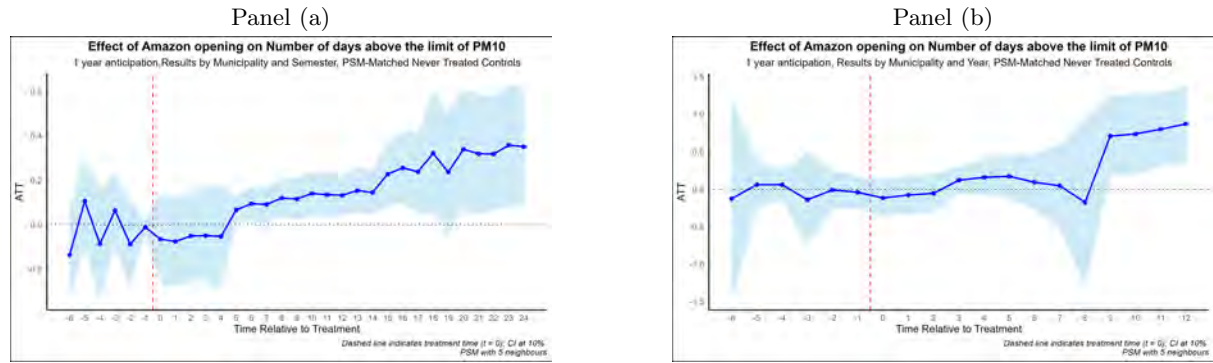


Figure B8: *Dynamic Difference-in-Differences Specifications for Air Quality with PSM-Matched Never Treated controls, 1 year of anticipation*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Number of Days Above the PM₁₀ limit with PSM-Matched Never Treated Controls at the Municipality-Semester level (Panel (a)); the Number of Days Above the PM₁₀ limit with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Accounts for 1 year of anticipation. Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.12.2 2 years of anticipation

Income, Welfare & Local Development

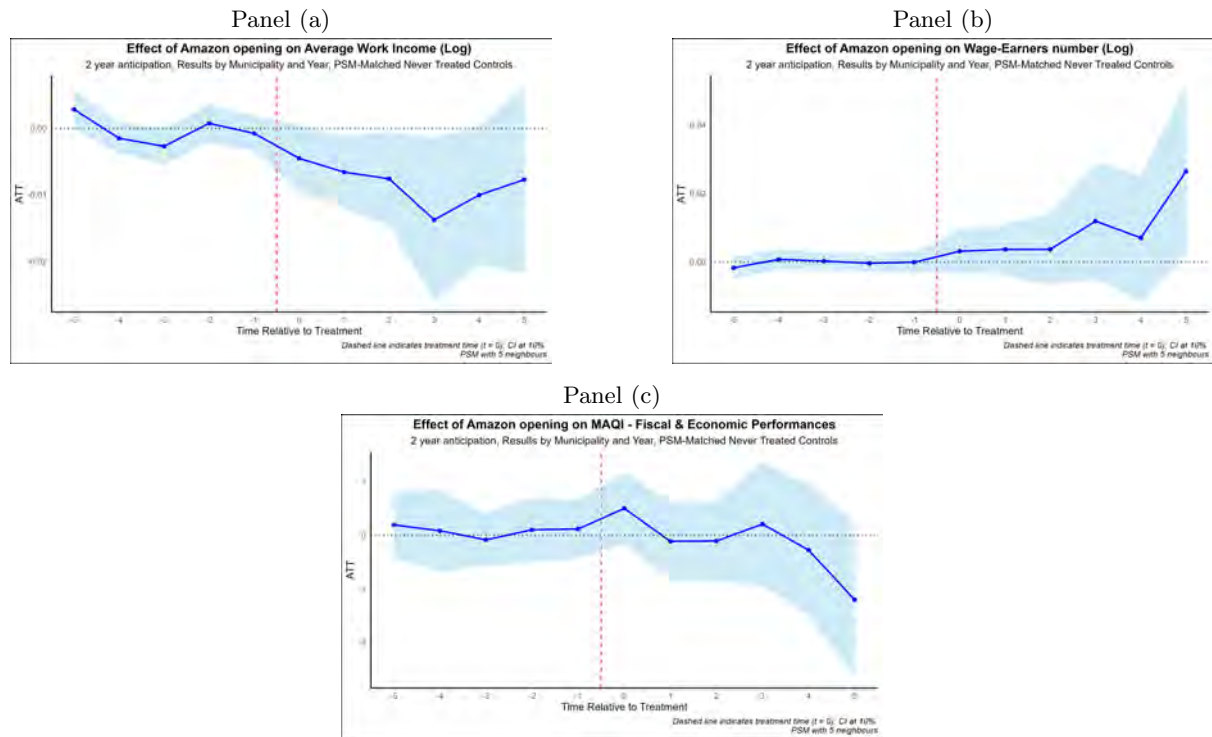


Figure B9: *Dynamic Difference-in-Differences Specification for local welfare indicators with PSM-Matched Never Treated controls, 2 years anticipation*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Average Work-related Income (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (a)); the total number of jobs (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)); the Fiscal & Economic Performances as defined in the MAQI (Cerqua et al., 2025) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Accounts for 2 years of anticipation. Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

Local Income Groups Distribution

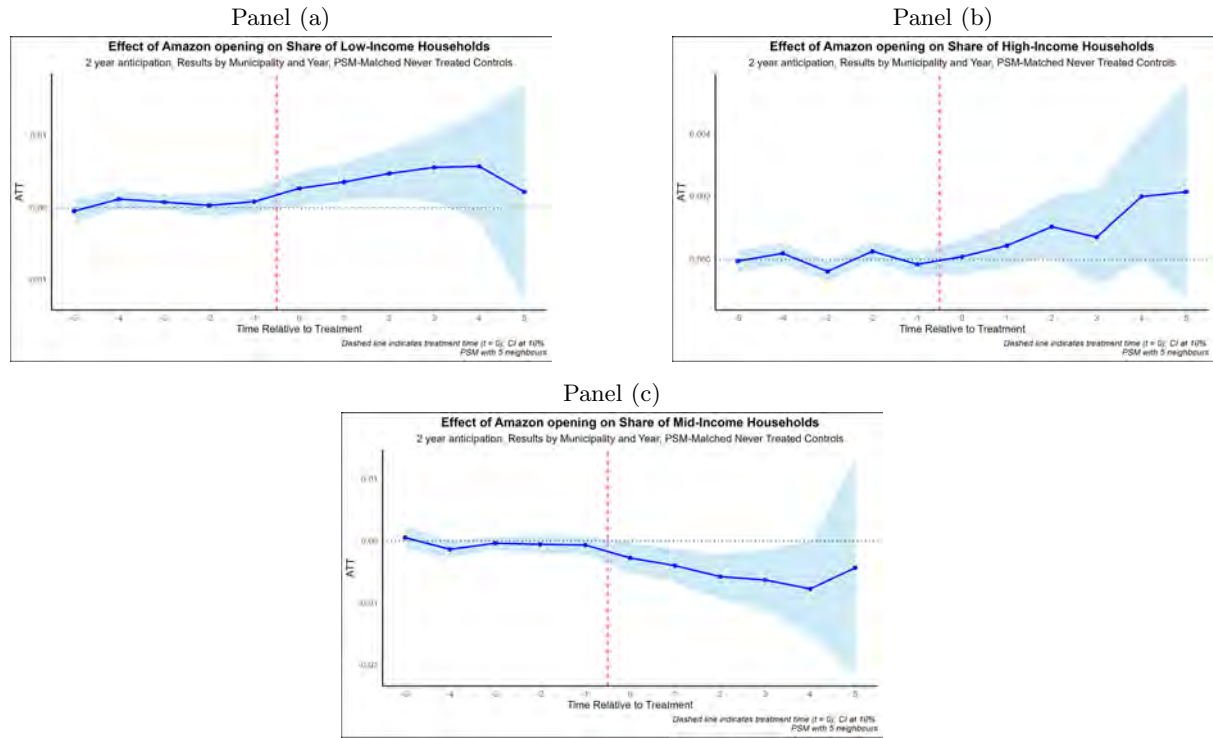


Figure B10: *Dynamic Difference-in-Differences Specification on local income groups distribution with PSM-Matched Never Treated controls, 2 years anticipation*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Share of Low-Income Households (annual income below 15K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (a)); the Share of High-Income Households (annual income above 55K€) with PSM-Matched Never Treated Controls at the Municipal-Year level (Panel (b)); the Share of Middle-Income Households (annual income between 15K and 55K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Accounts for 2 years of anticipation. Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

Air Quality & Local Environment

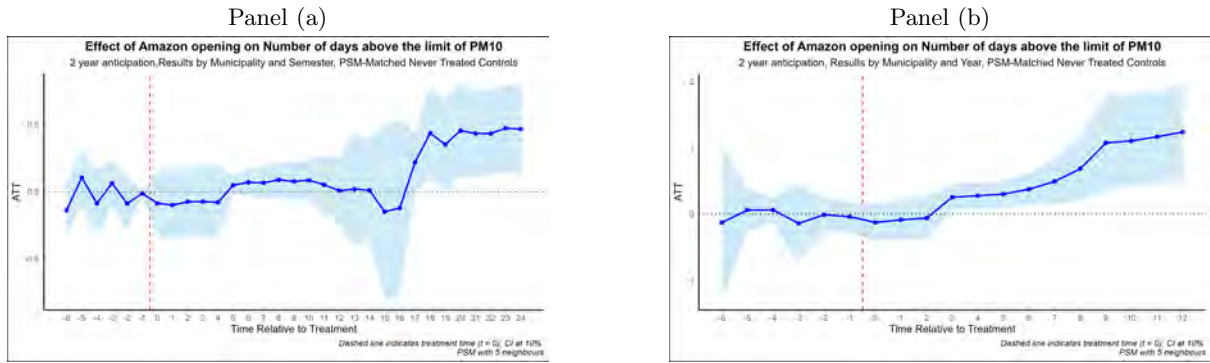


Figure B11: *Dynamic Difference-in-Differences Specifications for Air Quality with PSM-Matched Never Treated controls, 2 years of anticipation*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Number of Days Above the PM_{10} limit with PSM-Matched Never Treated Controls at the Municipality-Semester level (Panel (a)); the Number of Days Above the PM_{10} limit with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Accounts for 2 years of anticipation. Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.12.3 3 years of anticipation

Income, Welfare & Local Development

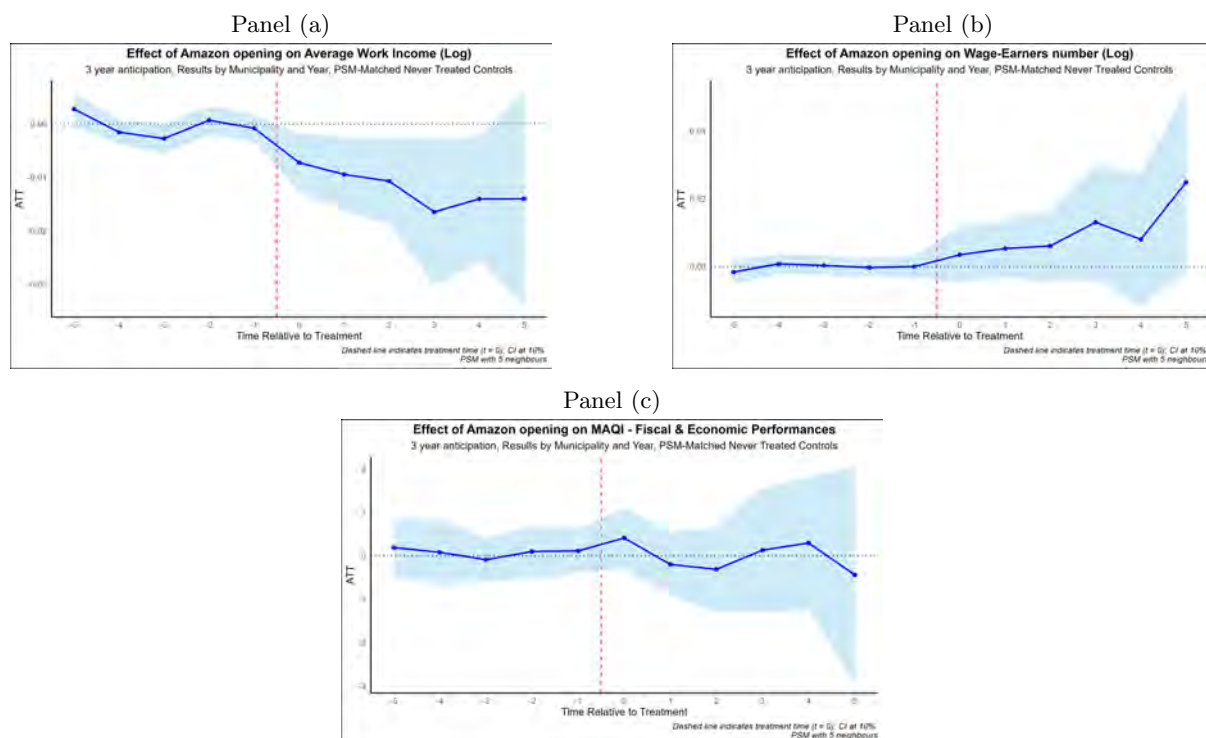


Figure B12: *Dynamic Difference-in-Differences Specification for local welfare indicators with PSM-Matched Never Treated controls, 3 years anticipation*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Average Work-related Income (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (a)); the total number of jobs (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)); the Fiscal & Economic Performances as defined in the MAQI (Cerqua et al., 2025) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Accounts for 3 years of anticipation. Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

Local Income Groups Distribution

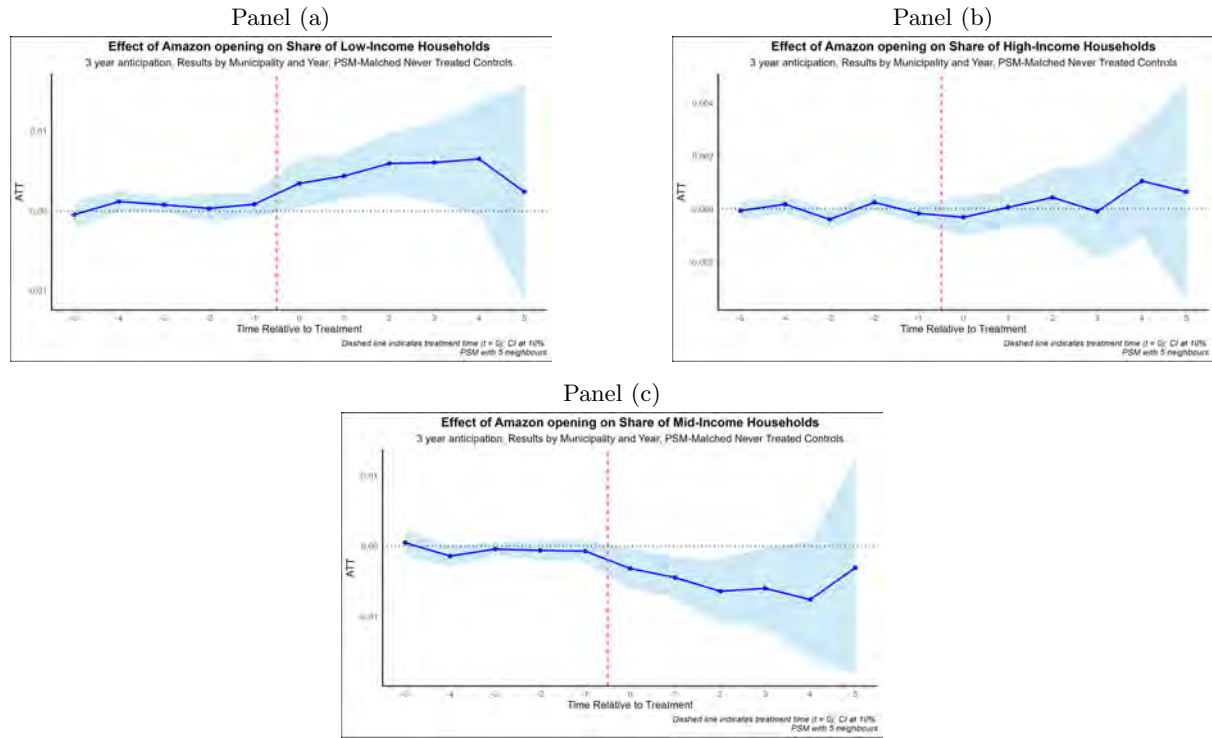


Figure B13: *Dynamic Difference-in-Differences Specification on local income groups distribution with PSM-Matched Never Treated controls, 3 years anticipation*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Share of Low-Income Households (annual income below 15K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (a)); the Share of High-Income Households (annual income above 55K€) with PSM-Matched Never Treated Controls at the Municipal-Year level (Panel (b)); the Share of Middle-Income Households (annual income between 15K and 55K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Accounts for 3 years of anticipation. Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

Air Quality & Local Environment

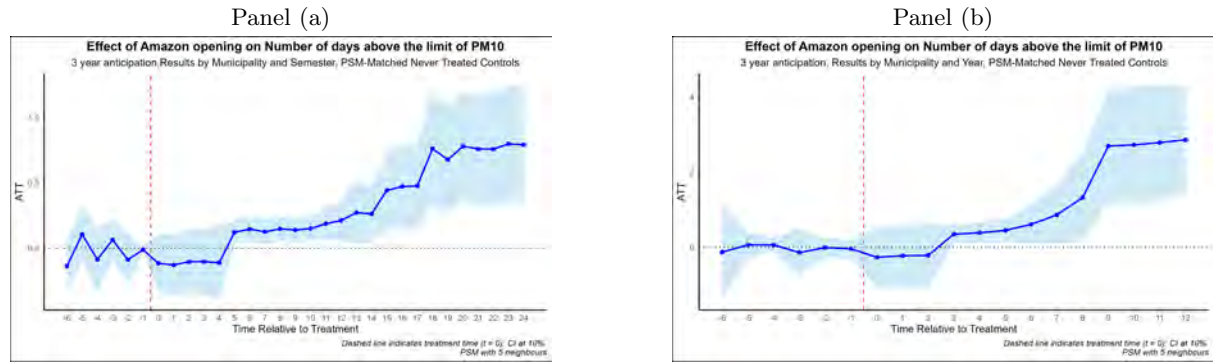


Figure B14: *Dynamic Difference-in-Differences Specifications for Air Quality with PSM-Matched Never Treated controls, 3 years of anticipation*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Number of Days Above the PM_{10} limit with PSM-Matched Never Treated Controls at the Municipality-Semester level (Panel (a)); the Number of Days Above the PM_{10} limit with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Accounts for 3 years of anticipation. Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.13 Excluding the COVID year (2020)

B.13.1 Income, Welfare & Local Development

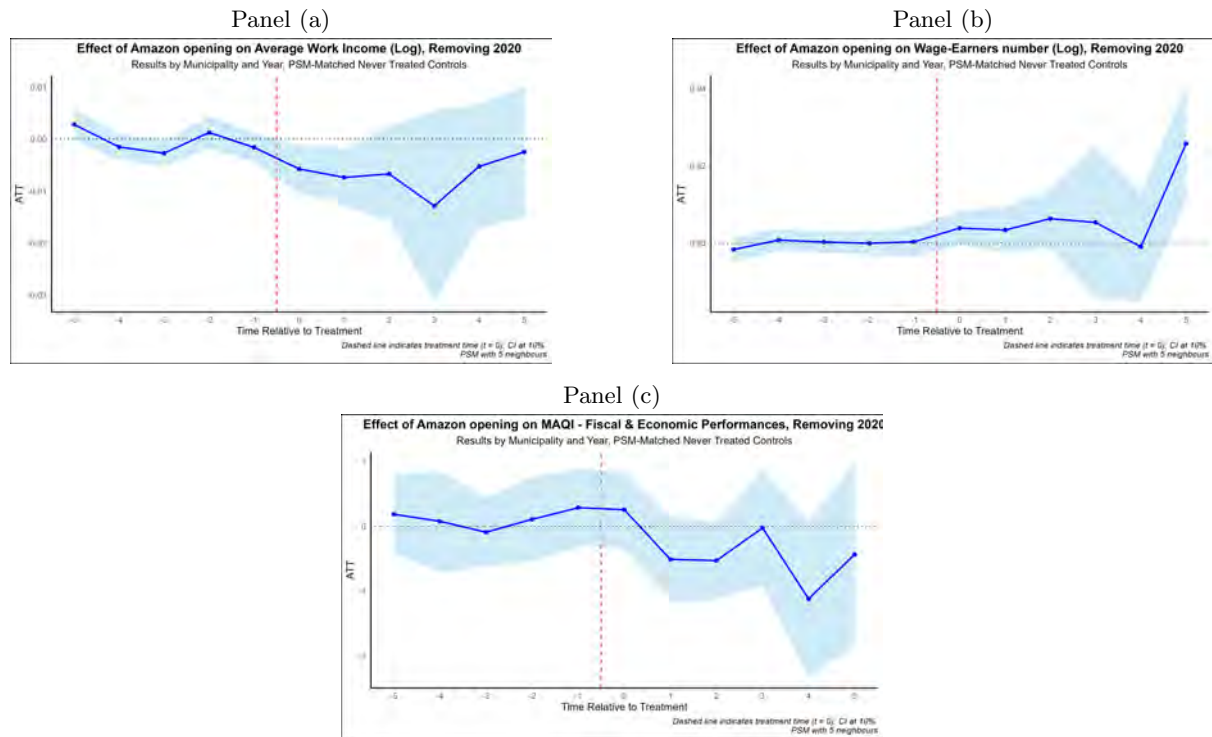


Figure B15: *Dynamic Difference-in-Differences Specification for local welfare indicators with PSM-Matched Never Treated controls, Excluding 2020*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Average Work-related Income (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (a)); the total number of jobs (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)); the Fiscal & Economic Performances as defined in the MAQI (Cerqua et al., 2025) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). The year 2020 is excluded. Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.13.2 Local Income Groups Distribution

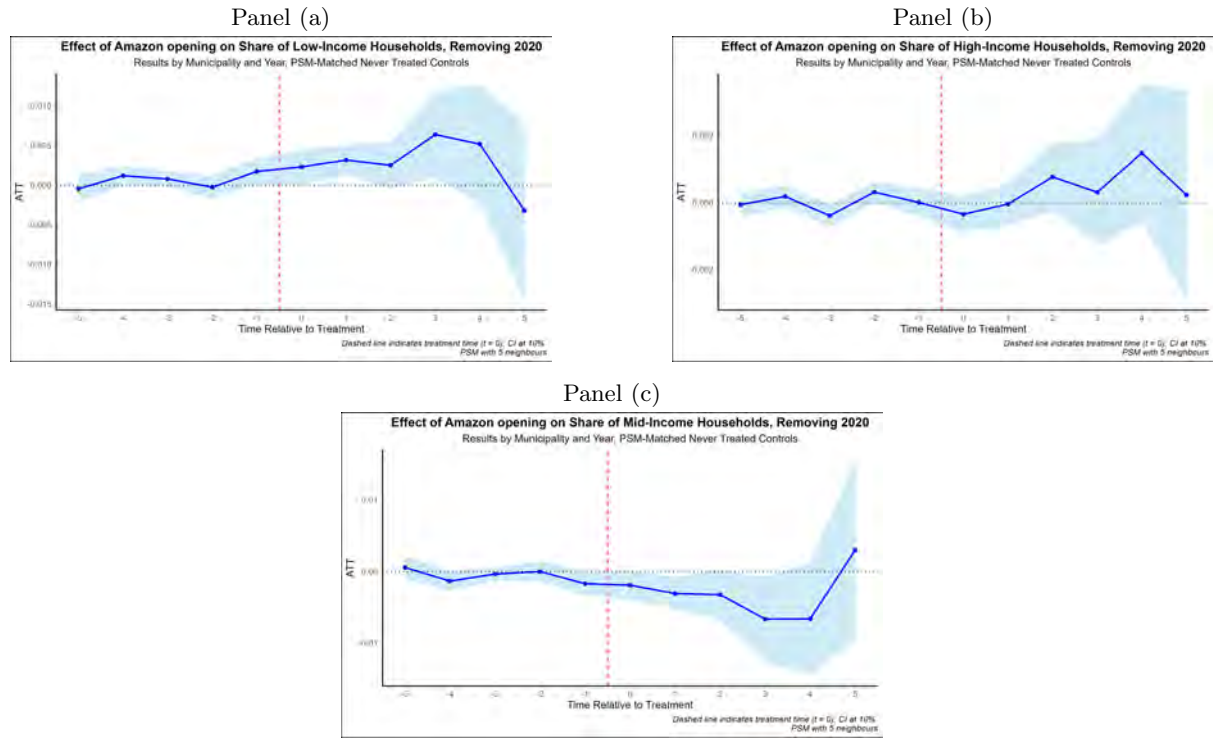


Figure B16: *Dynamic Difference-in-Differences Specification on local income groups distribution with PSM-Matched Never Treated controls, Excluding 2020*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Share of Low-Income Households (annual income below 15K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (a)); the Share of High-Income Households (annual income above 55K€) with PSM-Matched Never Treated Controls at the Municipal-Year level (Panel (b)); the Share of Middle-Income Households (annual income between 15K and 55K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). The year 2020 is excluded. Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.13.3 Air Quality & Local Environment

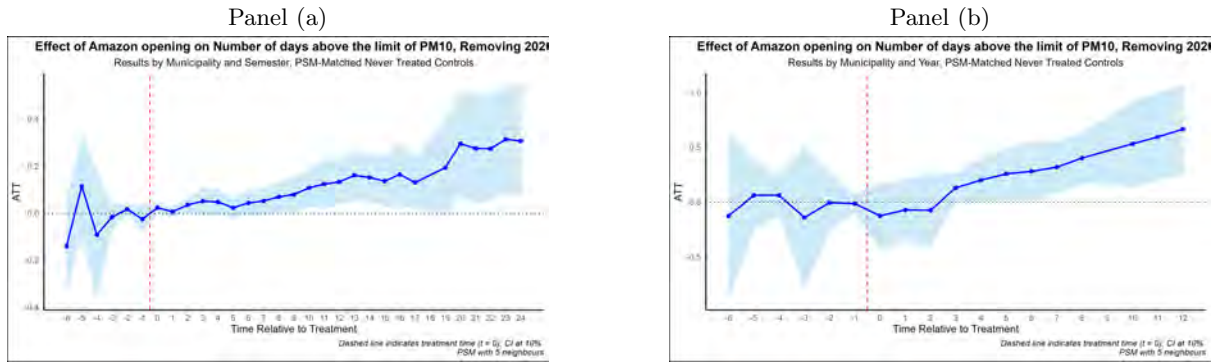


Figure B17: *Dynamic Difference-in-Differences Specifications for Air Quality with PSM-Matched Never Treated controls, Excluding 2020*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Number of Days Above the PM₁₀ limit with PSM-Matched Never Treated Controls at the Municipality-Semester level (Panel (a)); the Number of Days Above the PM₁₀ limit with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). The year 2020 is excluded. Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.14 Excluding Piacenza-Castel San Giovanni from treated units

B.14.1 Income, Welfare & Local Development

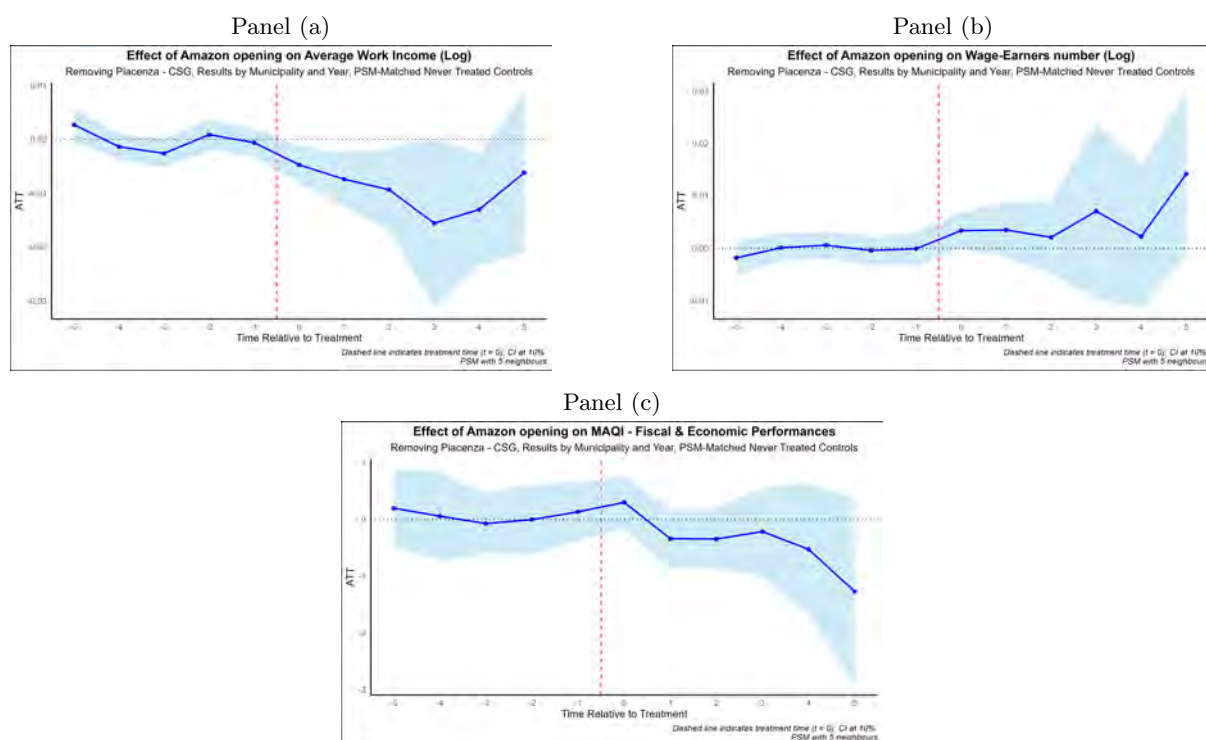


Figure B18: *Dynamic Difference-in-Differences Specification for local welfare indicators with PSM-Matched Never Treated controls, Excluding Piacenza-Castel San Giovanni*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Average Work-related Income (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (a)); the total number of jobs (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)); the Fiscal & Economic Performances as defined in the MAQI (Cerqua et al., 2025) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). The municipality of Piacenza is excluded. Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.14.2 Local Income Groups Distribution

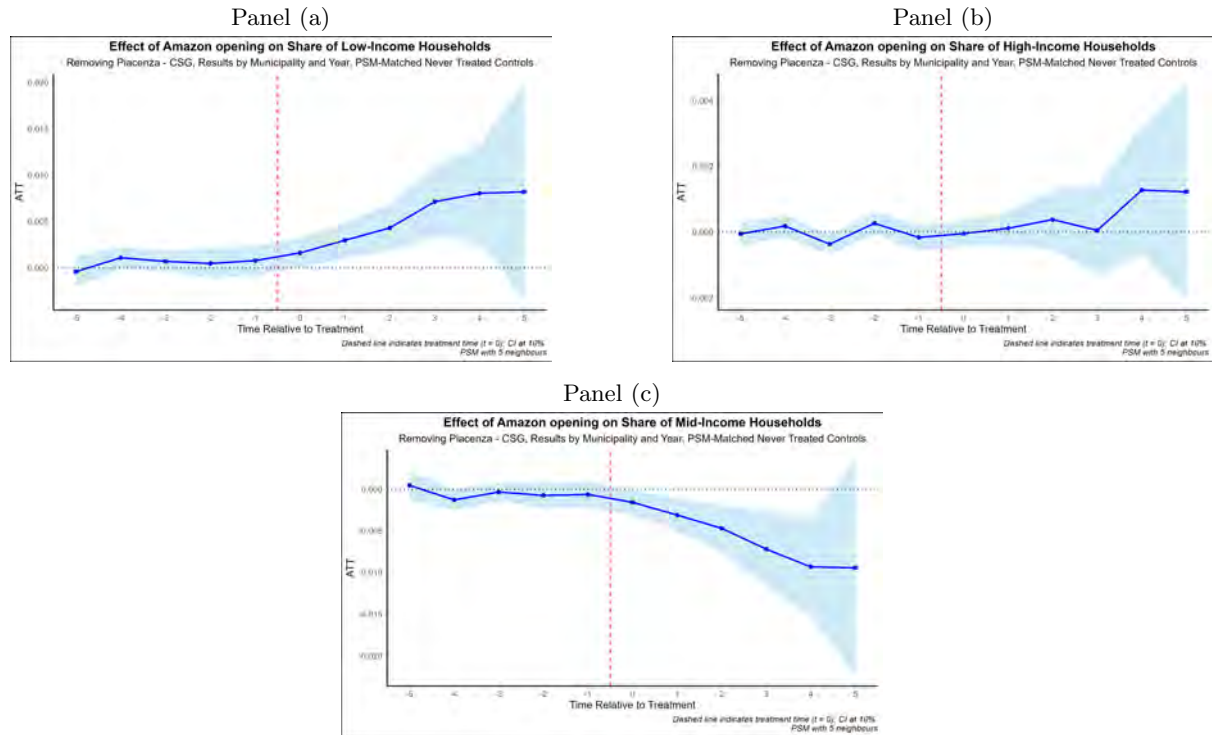


Figure B19: *Dynamic Difference-in-Differences Specification on local income groups distribution with PSM-Matched Never Treated controls, Excluding Piacenza-Castel San Giovanni*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Share of Low-Income Households (annual income below 15K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (a)); the Share of High-Income Households (annual income above 55K€) with PSM-Matched Never Treated Controls at the Municipal-Year level (Panel (b)); the Share of Middle-Income Households (annual income between 15K and 55K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). The municipality of Piacenza is excluded. Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.14.3 Air Quality & Local Environment

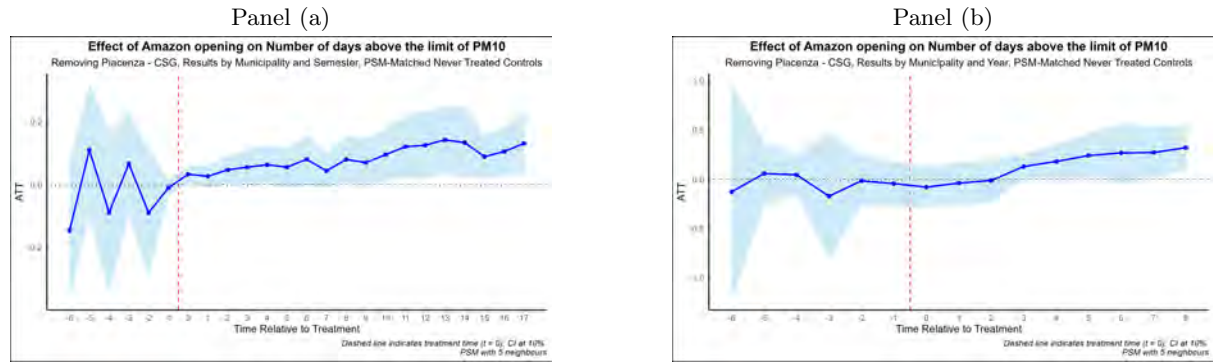


Figure B20: *Dynamic Difference-in-Differences Specifications for Air Quality with PSM-Matched Never Treated controls, Excluding Piacenza-Castel San Giovanni*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Number of Days Above the PM_{10} limit with PSM-Matched Never Treated Controls at the Municipality-Semester level (Panel (a)); the Number of Days Above the PM_{10} limit with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). The municipality of Piacenza is excluded. Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.15 Excluding municipalities with Multiple Hubs according to ISPRA data

B.15.1 Income, Welfare & Local Development

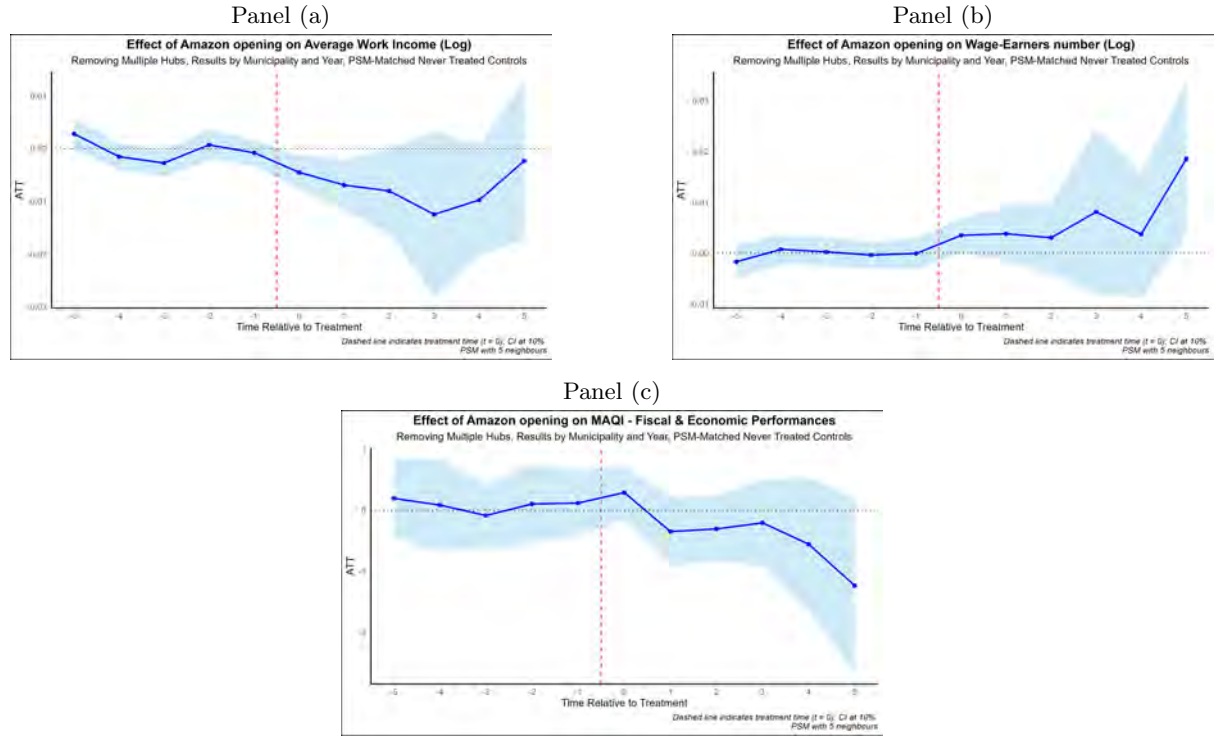


Figure B21: *Dynamic Difference-in-Differences Specification for local welfare indicators with PSM-Matched Never Treated controls, Excluding municipalities with multiple hub openings*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Average Work-related Income (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (a)); the total number of jobs (log-transformed) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)); the Fiscal & Economic Performances as defined in the MAQI (Cerqua et al., 2025) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Municipalities with multiple hub openings are excluded. Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.15.2 Local Income Groups Distribution

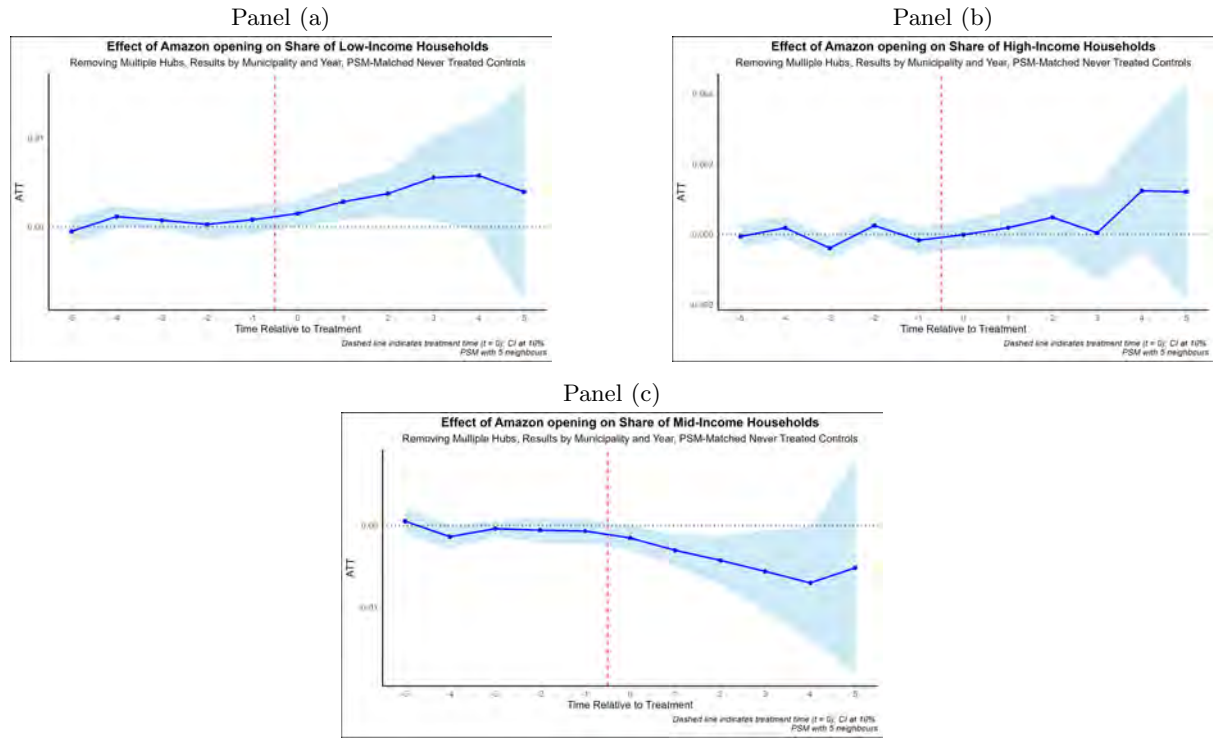


Figure B22: *Dynamic Difference-in-Differences Specification on local income groups distribution with PSM-Matched Never Treated controls, Excluding municipalities with multiple hub openings*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Share of Low-Income Households (annual income below 15K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (a)); the Share of High-Income Households (annual income above 55K€) with PSM-Matched Never Treated Controls at the Municipal-Year level (Panel (b)); the Share of Middle-Income Households (annual income between 15K and 55K€) with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (c)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Municipalities with multiple hub openings are excluded. Local Labour System/Municipality and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.

B.15.3 Air Quality & Local Environment

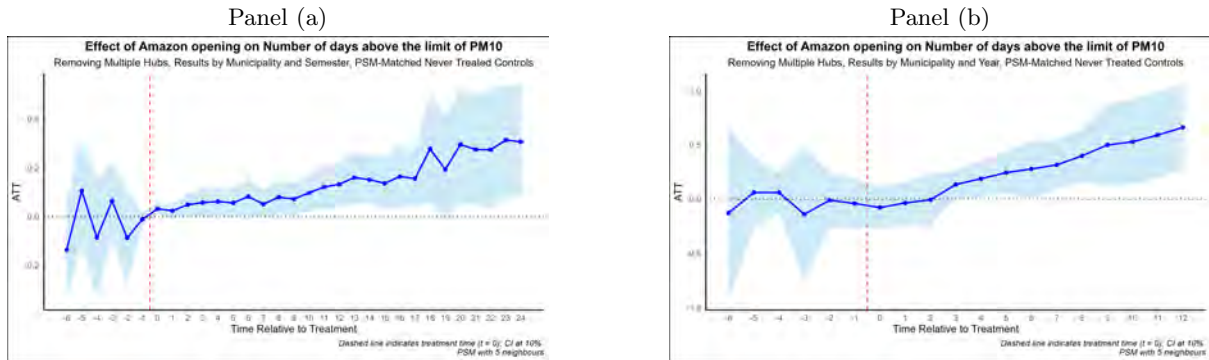


Figure B23: *Dynamic Difference-in-Differences Specifications for Air Quality with PSM-Matched Never Treated controls, Excluding municipalities with multiple hub openings*

Notes: The figure shows event study estimates of the effect of having an Amazon Centre on: the Number of Days Above the PM₁₀ limit with PSM-Matched Never Treated Controls at the Municipality-Semester level (Panel (a)); the Number of Days Above the PM₁₀ limit with PSM-Matched Never Treated Controls at the Municipality-Year level (Panel (b)). Average effects before and after the Amazon openings are estimated using the estimator of Callaway and Sant'Anna (2021). Municipalities with multiple hub openings are excluded, and time fixed effects are included in all models. Standard errors are clustered at municipal level. Confidence intervals are at 90 per cent.



GSSI – GRAN SASSO SCIENCE INSTITUTE

Viale Francesco Crispi, 7 – 67100 L'Aquila, Italy

WWW.GSSI.IT



GRAN SASSO
SCIENCE INSTITUTE